THE INFLUENCE OF CHOBE NATIONAL PARK ON PEOPLE'S LIVELIHOODS AND CONSERVATION BEHAVIORS

By

BOTHEPHA BOGOLO T. MOSETLHI

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By

Bothepha Bogolo T. Mosetlhi

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Co-chair: Marilyn Swisher
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This study investigated the impact of Chobe National Park on rural development and biodiversity conservation by focusing on the influence the park has on people's livelihoods and the subsequent effect on conservation behaviors. Chobe District is biodiversity well-endowed, yet an area where poverty is the order of the day. The natural resource base of Chobe makes the district the second most important tourism area in Botswana after the Okavango Delta. Given the growth and position of tourism as the most important engine of economic growth after diamonds in Botswana, the study sought to determine whether the claimed conservation and tourism benefits are realized at the household level.

Grounded on the theories of empowerment and social exchange the study set out to specifically determine: if the park results in favorable and equitable distributed livelihood effects, factors underlying the livelihood effects, and if the livelihood effects impact conservation behaviors. A mixed method approach was adopted involving qualitative and quantitative data collection and analysis procedures. Within the park's

hinterland, three settlements were sampled on the basis of proximity to park, level of development and length of CBNRM experience.

The study revealed that while Chobe National Park is able to generate significant revenues through tourism, they are not equitably distributed. Significant benefits are derived by the government, foreign investors and, to some extent, used for community projects while the ordinary people are left with trivial gains although they are the ones who bear the brunt of living with wildlife. Socio-economic variables, urbanity and restrictive policy are the main factors governing the distribution of the tourism revenues. Conservation behaviors are generally positive, owing mainly to strict law enforcement, passivity and reduced focus on environmental resources induced by alternative livelihood activities, mainly government employment. Overall, the study demonstrates that while succeeding in maintaining ecosystem sustainability, the park is unable, as a development intervention, to address the problems of rural poverty, inequalities, dependencies and marginalization of the locals. These conditions reflect ‘powerlessness’ and inability to take charge of one’s life, the reverse of social advancement and empowerment as advocated in conservation and tourism policy.

CHAPTER 1
PREAMBLE

Background

Contemporary natural resource management is marked by discourses and strategies that attempt to build positive relationships and synergies between conservation and development. The concept of public participation, particularly the involvement of local communities in environmental management and sharing of conservation benefits, has attracted significant attention in this regard. These initiatives have been prompted by the heightened social and environmental issues that persistently challenge the world today, and which ironically are rampant in resource rich environments (Darkoh & Rwomire, 2003; World Commission on Environment & Development - WCED, 1987). Notably, in spite of their natural resource endowments and intensified conservation effort, conditions which presumably would provide a solid base for economic development, many developing nations are engulfed by vicious circles of the social and environmental problems which therefore work against their advancement. The issues in question include deprivation of resource rights and marginalization of people's values and say in decision making processes that affect their lives (Adams & Hutton, 2007; Brockington, 2002; Darkoh 2003; Neumann, 1998; Swanson & Johnston, 1999). This poses far reaching implications including land use conflicts, unsustainable environmental practices, environmental deterioration, and the ever increasing social and spatial inequalities and the associated conditions of powerlessness and disillusionment (Chakravorty, 2006; Cousins et al., 2005; Darkoh, 1996; Murphree, 1997 & 1999; Sadan, 2004; Sen, 1999).

Various conservation policies and strategies have been adopted at global and national levels in the bid to conserve biodiversity and promote economic growth, and therefore to address the above-mentioned issues and problems. Strategies initiated at the international level are such as the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species (CITES), and the Ramsar Convention, while individual countries have formulated numerous conservation policies coupled with the designation of protected areas (e.g., national parks and game reserves). Typically, the African savannas with their abundant and diverse wildlife resource have become the focus for international and national conservation, while on the other hand they are leading in many of the social and environmental issues highlighted above (Brockington, 2002; Grinker, 1994; Katz, 2004; Kanbur & Venables, 2007; Neumann, 1998; O'Brien & Leichencko, 2003). This scenario prompts the questioning of the relevance of the current conservation measures and therefore the need to understand the factors behind it.

Statement of the Problem

Botswana, like many developing countries whose economies are heavily reliant on natural resources, has set aside large tracts of land as national parks and game reserves with the motive of protecting the native fauna and flora against human over-exploitation and competition with other land uses (Child, 2002; Campbell, 1995). This effort has been paralleled by the adoption of various national and international conservation policies and altogether amounted to setting aside almost 40% of the country's land for wildlife management. Despite these conservation measures, Botswana still faces many environmental and social challenges (Alexandra, 2002; Government of Botswana, 1990; Ministry of Environment, Wildlife & Tourism, 2007).

This includes the destruction of habitats by wildlife and domestic herbivores, wildlife declines, land use conflicts, deprivation and disillusionment of rural communities and growing dependency on government handout programs or subsidies (Arntzen et al., 1994; Darkoh, 1996; Kgabung, 1999). Literature (e.g., Magole, 2007; Perkins et al., 2002; Perkins & Ringrose, 1996) pin points conservation policy as one of the key factors underlying this state of affairs. It is indicated across Africa that conservation as it has evolved in the continent has not heeded people's cultural resource values and developmental needs (Brockington, 2002; Brockington & Igoe, 2006; Child, G. 2002; Hulme & Murphree; 1999). This is manifested by, among other things, lack of attainment of meaningful benefits from protected areas and other conservation strategies by local people. Instead the people incur opportunity costs as they are compelled to give way to conservation and forfeit potential benefits they could otherwise attain from alternative land uses like farming, logging and mining (Brockington, 2002; Cumming, 2004; Emerton, 1999; Lusingi, 1994; Struhsaker et al., 2005; Walker, 1994). They also suffer negative externalities of living side by side with the protected resources such as elephants and predators. As summarized by Walker (1994), while modern conservation measures have become necessary, they have on the other hand displaced people's traditional regulatory systems of managing resources and disregarded their customary resource rights. Consequently various forms of attitudes and behavioral responses have evolved among people living adjacent to parks which work against biodiversity conservation. For example, illegal practices like poaching and destructive burning of wildlife habitats as well as negative and passive attitudes toward conservation among locals have been noticed in many places around parks in Africa (Brockington, 2002;

Cumming, 2004; Hoare, 2000; KCS, 2003; Mbaiwa et al., 2003; Sitati et al., 2005). In some cases there have been resentments, acts of brutality to wildlife, and riots and litigations in pursuit of lost resources (Byaruhanga, 2008; Brockington, 2002; Brockington & Igoe, 2006; Holmes, 2007; Neumann, 1998).

The persistence of the foregoing issues prompts an analysis of the relevance and linkage of park conservation to social development and in the final analysis to biodiversity conservation, in Africa in general and Botswana in particular. This has stimulated the present study where the goal was to examine, from the perspective of the local people, the influence of Chobe National Park on people's livelihoods and conservation behaviors. Particular emphasis was on the nature and significance of the effects of the park to different people and the factors fueling these. On this aspect, it was interesting to examine if local livelihood activities have changed in line with the emergent tourism-based economies or are still reliant on traditional agricultural economies. Also, the study aimed to determine behaviors people demonstrate towards conservation of the protected resources (park estate) and discern how these are related to the livelihood effects of the park.

Previous studies in Botswana have focused mostly on assessing park performance in terms of ecological sustainability (e.g., BONIC, 2003; Fullman, 2009; Herremans, 1995; Skarpe et al., 2003) –, occasionally, economic returns in general, but seldom reveal a complete picture including park effectiveness with respect to maintenance of ecological integrity, promotion of economic growth and social empowerment and equity. A particular gap in the literature is lack of empirical data relating to factors underlying the significance and distribution of park-based economies

and impacts. Most of the research literature is an amalgam of dichotomy concerning winners and losers – that is, who benefits, controls and has proprietorship of the park resources. To date, no one has explored the validity, causes and implications of this in Botswana. Also, no attention has been given to the theoretical underpinnings behind these issues and conditions. Related studies on the subject have been limited to, for example, explaining the livelihood impacts of tourism development (e.g., Mbaiwa, 2008), the performance of CBNRM projects (e.g., Arntzen et al., 2003; Jones 2002), the extent of use of park resources (e.g., Lepetu, 2007), level of involvement local people in tourism in general, not necessarily park related (e.g., Mbaiwa et al., 2007; Moswete et al., 2008), and factors influencing elephant-human conflicts (e.g., Jackson et al., 2008). Additionally, there is no empirical evidence relating to practices people display towards conservation of the protected resources in Botswana other than generalizations or reports that are not based on methodical research (e.g., Mbaiwa et al., 2003). Studies relating to people's responses to conservation interventions have rather been focusing on attitudes (e.g., Kalahari Conservation Strategy, 2003) and while in some instances these responses are associated with conservation impacts, often the conclusions are based on assumptions. Thus, no study has empirically tested the direct relationship between park livelihood impacts and conservation behaviors in Botswana.

Research Objectives and Hypotheses

The purpose of this study was to investigate the influence of Chobe National Park (CNP) on people's livelihoods and conservation behaviors in Chobe District, northern Botswana. The key question the study sought to answer is, 'Does Chobe National Park result in favorable/positive and equitably distributed livelihood effects, and do the livelihood effects lead people to conserve the protected resources? The question was

applied to households across three communities (Kasane, Kachikau & Parakarungu) sampled from settlements in the periphery of the park. Specifically, the study was carried out to accomplish the following objectives:

Specific Objectives

To determine the nature and distribution of the livelihood (socio-economic) effects of the park

To determine factors underlying the nature and distribution of the livelihood effects of the park

To examine the extent to which people participate in conservation of the protected resources (conservation behaviors) and if the conservation behaviors are associated and predicted by livelihood effects

Study Hypotheses

There is no significant variation in the nature and distribution of the livelihood effects of the park between the three study communities.

Livelihood effects are not a function of perceived control over park resources, perceived access to park resources, and participation in park governance.

- Perceived control over park resources does not predict livelihood effects of the park
- Perceived access to park resources does not predict livelihood effects of the park
- Participation in park governance does not predict livelihood effects of the park

People in the three study communities do not possess differing conservation behaviors

Livelihood effects do not impact conservation behaviors

Figure 1.1 presents a hypothetical model of the influence of Chobe National Park on people's livelihoods and conservation behaviors. Thus, the model postulated that livelihood effects of the park are influenced by participation in park governance, perceived control over and perceived access to park resources. The livelihood effects in turn determine conservation behaviors.

Definitions of Terms

The park. Parks fall under the broad category of protected areas, defined by IUCN's (1994:261) as "an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means". This definition highlights two broad attributes of parks; first, the resources they possess or generate and which can be used for different conservation and development endeavors, second, the institutional arrangements governing the use of the resources.

The park of interest in the present study is Chobe National Park, including both its resources and governing structures. Focus is on: 1) how the different resources (primary, secondary and otherwise) of Chobe National Park influence local livelihoods and eventually conservation behaviors, and 2) the park processes (governing structures or institutional arrangements) affecting people's control over and access to park resources, which therefore concern this study as the primary factors underlying the livelihood effects of the park. For clarity and to aid relevant measurement, the park processes underlying people's control and access to park resources (therefore the livelihood effects of the park) are represented by or have been hypothesized as: perceived control over park resources, perceived access to park resources, and participation in park governance.

Park resources. As highlighted above there are various forms of park related resources, including primary (e.g., natural endowments and cultural heritage material), secondary (e.g., fiscal returns, uses of primary resources of the park such as tourism and research) and others like social resources (e.g. social networks or organizations, social support, and instrumental support). In this study park resources refer to: 1)

wildlife and their habitats - parkland, 2) tourism uses or income, and 3) park governing bodies.

Control over park resources. This refers to management control or governance of the park and related resources. According to Hyden, (1992:6 in Booth, 2008) governance is "*the conscious management of regime structures with a view to enhancing the legitimacy of the public realm*". It relates to the people, processes, and content of public decision making and pertains primarily to representation, accountability and democratization (Agrawal & Ostrom, 2001:487; Bar-on, 2006). In line with the foregoing, IUCN's (1994:261) demonstrates that protected areas and related resources are 'managed through legal or other effective means'.

Like other protected areas elsewhere, Chobe National Park has set institutional structures guiding its governance. Among the various regulatory instruments for protected areas or wildlife in Botswana are: Wildlife Conservation and National Parks Act of 1992, Tourism Policy of 1990, and CBRNM Policy. The main authority implementing conservation policy is Department of Wildlife and National Parks (DWNP). In addition, Local Advisory Committees (LACOMs) have been instituted at the district or regional level to collaborate with DWNP and allow for public or stakeholder involvement in park governance. Grassroots involvement in natural resource management has also been initiated through such the establishments as CBNRM Trusts which are mainly governed by the CBNRM policy. This study considered the governing structures of Chobe National Park, not only for purposes of understanding institutional structures for governing this conservation intervention, but also to get a sense about the extent to which people have control over the park resources. All said, the study adopted the park

governing structures as defined here, specifically; DWNP, LACOM and CBNRM Trusts as the park governing authorities or bodies.

Access to park resources. Resources (e.g., land, labor and capital) constitute vital inputs in any economic activity hence consideration of people's access to livelihood resources is crucial to this study. Bruce (1998:5) defines access as *"the ability to use land or other resources*". As indicated by Scoones (1998:7), "the ability to pursue different livelihood strategies is dependent on the basic material and social, tangible and intangible assets that a person has in their possession". This study adopts the definition of access as advanced by these scholars. Thus, interest is on the capabilities (e.g., ability, skill, talent, knowledge, purchasing power) that enable households to access or make use of park resources for the benefit of their livelihoods. Of importance too I s the extent to which the park is facilitating or widening people's access to park resources.

Perceived control over park resources. Perceived control refers to people's perceptions of their control, or lack of control, over desired behaviors (Ajzen, 1985). It relates to perceived ease or difficulty of performing the behavior (Ajzen, 2002; Beedell & Rehman, 2000; Doll & Ajzen, 1991). As these authors elaborate, perceived ease or difficulty of performing a behavior can be in several dimensions including: degree, strength or likelihood of control. Degree of perceived control, for instance, can be in terms of perceptions rating the degree of control on a scale of absolutely no control to complete control. It can also be measured by perceptions rating the difficulty or ease of exercising control on a scale of extremely difficult to extremely easy. Perceived control over performance of a behavior can be a function of self-efficacy, an individual's confidence that they can perform a behavior, or of external factors beyond a person's

control such as government policy or climate. Perceived control or ease or difficulty of performing a behavior has been shown to directly or indirectly predict behaviors of interest (Beedell & Rehman, 2000; Hrubes, et al., 2001; Madden et al., 1992; McGinty et al., 2008; Paulhus, 1983; Sai-Pui, 1999).

The behavior of concern in this study is people's control over park resources, the performance of which (or lack of) is influenced by factors beyond personal control which in this case relate the park governing or institutional structures. The focus of this study was therefore on determining; first, park related factors facilitating or impeding household control over park resources, and second, the degree of control households are perceived to have over park resources. In other words, for this study perceived control over performance of a behavior refers to: 1) people's perceptions of how the park governing structures make it ease or difficulty for their households to exercise control over park resources, as well as 2) people's perceptions about the degree of control their households have over park resources.

Perceived access to park related resources. As indicated earlier, access to resources is more often than not personally controlled, hence this study considers perceived access to park resources as perceived self-efficacy, the belief in "*one's capabilities to organize and execute the courses of action required to produce given attainments*" (Bandura, 1997:3). Self-efficacy beliefs influence how people feel, think, motivate themselves and behave (Bandura, 1993:118). Thus, this study focused on people's beliefs about their abilities to access park resources.

Participation in park governance. Public participation is widely advocated for as a tool for enabling people control over key decisions that affect their lives (Chambers,

1983 & 1997; Ostrom, 1998; Soussan, et al., 2003; WCED, 1987). Pretty & Shah (1997, p. 53) identify different types of participation as ranging from "*manipulative and passive participation, where people are told what is to happen and act out predetermined roles, to self-mobilization, where people take initiatives largely independent of external institutions*". According to Beierle & Konisky (2001) and Child & Murphree (2004), public participation in management of natural resources includes granting people some power, authority and rights over natural resources in their areas, and taking on board people's values, indigenous knowledge and institutions. Among the pre-requisites for effective public participation are: open and transparent collaborations and partnerships, interactive communication and access to information, commitment and accountability, power to influence the participation process and its outcomes, supportive policy frameworks and non-governmental institutions, use of locally adapted resource-conserving technologies, and adaptive management (Agrawal, 2001; Beierle & Konisky, 2001; Child & Murphree, 2004; Pretty & Shah, 1997; Murphree and Hulme 1999; Tuler & Webler, 1999).

Based on the concept and attributes of public participation as outlined in this section, this study defines participation in park governance as people's involvement in the decision making processes of the park, including having management control over park resources and uses. Specifically, participation in park governance refers to household level of participation in various responsibilities or activities relating to park governance or which fall within the jurisdiction of the three park governing bodies; DWNP, LACOM and CBNRM Trusts.

Livelihood effects of the park. Livelihoods refer to how people earn a living, and encompass assets, capabilities and activities which are the means to earning that living (Ellis, 2000; Scoones, 1998). Assets refer to a variety of basic resources; natural, economic, social or human, that people can draw on as the basis of their livelihoods. Capabilities denote what people are capable of doing and being and can be enhanced through learning, practice, training and education as means to better living (Chambers, 1997, p.10). Both assets and capabilities are preconditions that lead to livelihood activities. As noted by Soussan (2003), it is rare for people, particularly rural households to earn a living through one livelihood activity, but a combination of several livelihood activities which can include subsistence farming, livestock rearing, hawking, tour guiding, informal employment, etc.

In view of the foregoing, and especially given that social development is together with conservation the major objectives of parks (Cumming, 2004; GOB, 1992; IUCN, 1994), Chobe National Park has been presumed to have various types and levels of effects on the livelihoods of people living in its vicinity. In respect of this and the different attributes of the park that can effect change on people's livelihoods, this study identifies the livelihood effects of the park as follows: 1) involvement in tourism socio-economic activities, 2) attainment of park benefits – e.g., employment, ownership of tourism facilities, game meat, environmental education, etc., and 3) experience of park costs – e.g., livestock predation, field damages, disease transmissions, grazing completion and so on.

Conservation behaviors. According to literature (e.g., Byaruhanga, 2008; Brockington, 2002; Hoare, 2000; Holmes, 2007; Neumann, 1998) various forms of

conservation facilitating or impeding behaviors have been displayed by local people; positive verses negative practices, peaceful resistance movements verses violent actions, and so on. Positive behaviors are such as compliance with rules and undertaking of certain conservation support practices (e.g., participation in conservation programs or clubs, sustainable harvesting methods), while negative behaviors include unlawful actions (e.g. poaching, illegal grazing and collection of protected resources, illegal burning, and brutality to animals) and resistance movements and lawsuits in pursuit of purportedly deprived resource rights. The present study focuses on self-reported behaviors (as opposed to observed behaviors) and distinguishes them as follows: 1) compliance with conservation rules, 2) participation in practices promoting conservation, and 3) engagement in practices counteracting conservation or negative behaviors.

Household. NAFRI et al. (2005:219) defines a household as a group of people who live and eat together and typically engage in joint economic activity, and that the group is usually based on kinship normally comprised of the nuclear or stem family. Similarly, for this study a household is defined as all persons eating together and living in the same compound which can be made up of one or more living units. As the authors (p.218) further highlight, a household is the basic economic decision-making unit in rural society. Decision-making processes of concern in this study will be those relating to livelihoods.

Community. This study adopts Agrawal's (1999) definitions of community as a spatial unit, social structure and a set of shared norms, and therefore describes the study communities as people living within the same rural settlement or village and who

may dependent on the same livelihood resources, use the same language, belong to the same ethnic or religious group, and share norms and common interests. Decision-making at community level is higher than it is at household level. It is often instituted through the formation of different bodies (organizations, committees, etc.) for different jurisdictions and mandates. For instance, through government mandates it has become compulsory or a norm for all communities (settlements) in rural Botswana to have at least the following: traditional authorities, village development committees (VDC) and village extension teams (VETs), farmers' associations, crime prevention committees, all of which dealing, in one way on the other, with development and livelihood related issues. The present study focused on communities (settlements) in the catchment of Chobe National Park as well as community level bodies found in them.

Significance of the Study

This study has both practical and theoretical contribution to the field of natural resource management. It contributes broadly towards the understanding of the causes and implications of the issues surrounding common property resource conservation and the linkages this has with social development. It particularly reveals how conservation policy, institutional arrangements or interventions explain the social and environmental issues that persist in spite of the increased initiatives that are, among other things, geared at addressing them.

Specifically, the study provides empirical data on the nature and distribution of the livelihood effects of Chobe National Park, factors underlying these and subsequently behaviors people demonstrate towards conservation of the protected resources and how these are related to the livelihood effects. This indicates whether the desired relationships and synergies between conservation and social development (as

expressed in the country's conservation policy goals) are realized or not, and the processes influencing this. The findings give insights on how resource management policy can be directed to facilitate strategies that safeguard the environment in its totality – nature and people together. Thus, the research suggests ways of enhancing or mitigating the impacts of the park on livelihoods and biodiversity conservation. This does not only benefit Botswana but also other developing countries, the savannah environments and the world at large in the bid to promote positive relationships and synergies between conservation and development. Investigating the study questions from the perspective of the empowerment and social exchange theories not only test the validity of these theories in explaining the issues but will also show how the theories can form the basis for holistic and sustainable policy interventions. Thus, this approach shows the processes through which local empowerment (development and participation in conservation) can be achieved, and factors that can enhance or impede this. Importantly, for the park to enable social empowerment and development and ultimately biodiversity conservation, park processes should be empowering hence leading to empowered livelihood outcomes at different levels, in this study household and community levels. Empowered outcomes at both these levels can be in term of enhanced control over and access to park related resources. Effectively, the livelihood outcomes (serving as rewards in the social exchange theory) will breed strong social relations and trust between and within the empowered local communities and park governors and officials, and in turn conservation commitment and behaviors (see theoretical and conceptual frameworks). Most of the analyses of rural livelihood outcomes and factors underlying them have been tackled from the sustainable

livelihood framework (e.g., Harter, 2008; Mbaiwa, 2008), an approach that requires long-term assessments and is too broad, hence it omits details besides being beyond the scope and timeframe of the present study and cross-sectional designs. The contention here is that sustainability can be promoted by dealing first with processes that enable or disable people to take charge of their lives and effectively that empower them to have meaningful, successful or sustainable livelihoods and positive input in conservation of biodiversity. Although the present study has employed a cross-sectional design, unlike the existing studies, it went a step further to establish causal relationships by utilizing statistical controls, other than being just descriptive (Rubin & Babbie, 1997; de Vaus, 2006; Ary et al., 2006).

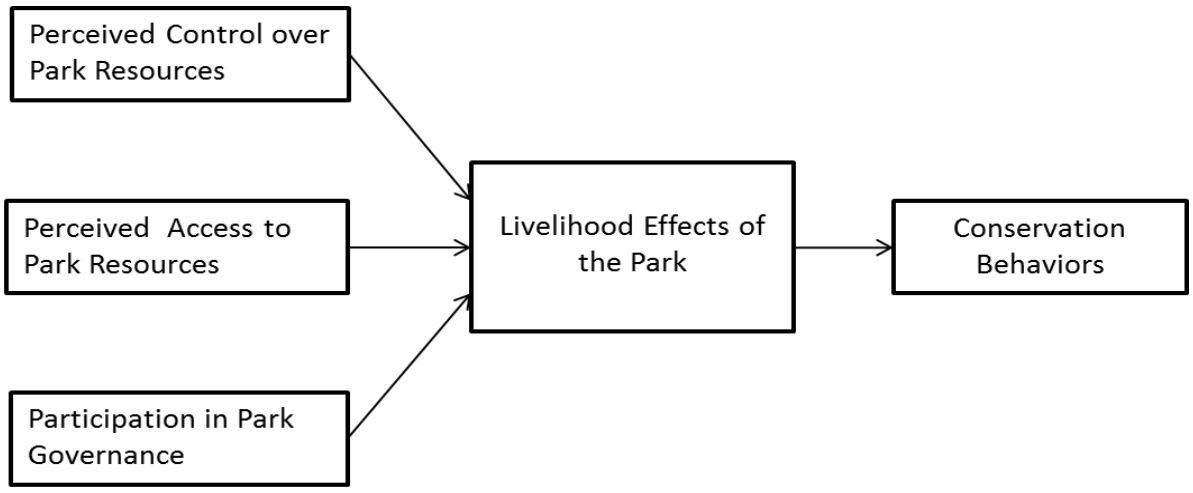

Figure 1-1. A hypothetical model of the factors influencing the livelihood effects of the park and the impact on conservation behaviors

CHAPTER 2
THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Theoretical Framework

The present study adopted empowerment theory together with social exchange theory to understand how park conservation influences human developmental and conservation actions. The aim was to establish how the park, as a conservation institution, commands 'empowering' processes that lead to 'empowered' livelihood outcomes, including people's input and participation in management and conservation of the protected resources.

Like any human behavior, the use of natural resources (e.g., park conservation) is governed by what North (1990) refers to as 'institutions' or what Giddens (1984 in Sadan, 2004) in his structuration theory (also known as the theory of dual structure) calls 'social structure'. Institutions are "humanly devised constraints that shape human interaction" (North, 1990:3). They consist of both formal rules (laws, constitutions, property rights), and informal constraints (sanctions, taboos, customs, traditions and codes of conduct), and tend to change slowly and incrementally. Institutions, as defined by North, relate to Giddens' social structure which is explained as a cluster of rules and resources that are an outcome of human action, the action that itself is made possible within the boundaries of the social structure in which it takes place (Sadan, 2004). "The rules guide and inform the action, and the resources provide it with energy: purpose, power, and efficacy" (Sadan, 2004:142). Thus, the social structure is reproduced social practices that are embedded in time and space. Supporting these arguments, Ritzer (1988 in Sadan, 2004) notes that structure is always both constraining and enabling. These arguments elucidate the fact that anthropogenic activity in general including

disturbing conditions and actions that plague the world today like poverty, inequalities, unsustainable resource uses, and loss of biodiversity are as much the determinant of the social structure as they are the result of it.

Empowerment Theory

Related directly to the concept of power, the empowerment theory attempts to explain the issue of powerlessness (e.g., oppression, marginalization, stratification and inequality) and therefore provides a means for understanding the development of individuals, groups, or communities (Sadan, 2004). Focus is on processes that mediate these conditions. The theory diagnosis powerlessness as a social problem not a personal problem, and therefore rejects the view that the condition develops because of personal deficiencies (Sadan, 2004). Consenting to this contention, Kroeker (1995) points out that the goals of empowerment are crucial in many parts of the world where extremely poor people are plagued by complex and self-perpetuating problems. The notion of empowerment itself and therefore the theory has multifaceted definitions, depending on the context or level of analysis (Perkins & Zimmerman, 1995; Zimmerman, 1995; Sadan, 2004). One overarching theme advanced by Sadan (2004:144) is that “empowerment is a process of transition from a state of powerlessness to a state of relative control over one’s life, destiny, and environment”. This study will use this definition together with the corresponding argument by Robbins et al. (1998:91), that empowerment is a process by which individuals and groups gain power, access to resources and control over their own lives. The process allows people to realize their strengths, become conscious of real life circumstances and actions that produce change, and gain ability to achieve their highest personal and collective aspirations and goals (Freire, 1973; Zimmerman, 1995). As reiterated by Gutierrez, et

al. (1995), this process enables people to recognize conditions of inequality and injustice and therefore take action to increase or regain power and control of their destinies, including actions that support both personal well-being and social justice.

Empowerment theory is making a place for itself among those new social theories that try to connect the micro and the macro, the individual well-being with the larger social and political environment (Sadan, 2004; Perkins & Zimmerman, 1995). The theory is grounded in the feminist thought, social action, and consciousness raising ideas and efforts of scholars like Paulo Freire (1971, 1973, and 1994). The empowerment theory outlined by Sadan (2004) is further informed by Giddens' structuration theory (1984), from which it adopts the principle of duality of structure. Sadan contends that processes of empowerment proceed in a manner of structural duality hence he arrives at the conclusion that empowerment influences change in human behavior and the social structure as well as the relationship between the two. Thus, the social structure systematically limits the human agency of particular groups as manifested by limited allocation of resources, which result in inability of human agency to develop ability (Sadan, 2004:155).

Empowering processes and empowered outcomes are the major components in theories of empowerment. As explained by Zimmerman (1995:583), empowering processes are those where people create or are given opportunities to control their own destiny and influence the decisions that affect their lives. Fundamental to empowering processes are: efforts to gain control, access to resources, and critical understanding of one's socio-political context. Empowered outcomes, on the other hand, are the consequences of empowering processes and therefore constitute empowerment

measurement indicators. Properties pertinent in respect of empowered outcomes are such as: mastery and control, resource access or mobilization, socio-political context, and participation. Table 1.1 below summarizes typical empowered outcomes as reflected in literature (e.g., Conger & Kanungu, 1988; Perkins & Zimmerman, 1995; Zimmerman, 1995; Kroeker, 1995; Spreitzer, 1995; Pigg, 2002; Carr, 2003; Sadan, 2004; Larkin et al., 2008). Sadan's (2004:149) empowerment theory reveals an important dynamic aspect of the empowerment process, that: empowerment potential exists not only in terms of people's personal resources and abilities, but also in terms of the rules and regulations of the social structure. This argument not only shows that both social structure and human agency represent different levels of empowerment, but also confirms the connection (structural duality) between the two, for example, the way a larger system (social structure) contributes to individual empowerment (human agency). On this basis the author (p.149) likens empowerment to a circular process of social change and activation of abilities and resources, in which human agents in need of empowerment act together with empowering human agents. He maintains that the empowerment process depends on what already exists in society (social structure), but the success of the process is defined by what and how much change on the personal level, the community level, and the social systems is connected with the process (p.150).

As already highlighted, there are different levels or processes of empowerment, including: individual (personal or psychological) empowerment, organizational empowerment, community empowerment, and structural, societal or formal empowerment (Conger & Kanungu, 1988; Perkins & Zimmerman, 1995; Zimmerman,

1995; Kroeker, 1995; Spreitzer, 1995; Pigg, 2002; Carr, 2003; Sadan, 2004; Larkin et al., 2008). The levels are mutually reinforcing and interdependent with individual empowerment, which can occur in a variety of circumstances and conditions, being the foundation upon which other levels build. For example, Sadan (2004) demonstrates that in every process of individual empowerment there also exists potential for community development, and in turn community empowerment creates an environment that enhances individual empowerment. Some scholars, like Zimmerman (1995), refer to empowerment at the individual level as psychological empowerment (PE) entailing self-perceptions of competence, active engagement in one's community, and an understanding of one's socio-political environment. According to this author PE has three components as shown in Figure 2-1: intrapersonal (cognitive empowerment); interactional (how people think about and relate to their environment); and behavioral (taking action and engaging issues). As summarized by Sadan (2004:150) the attainment of PE or personal efficacy draws its strength from structural forms of control that are embedded in social systems.

On the other hand, Kroeker (1995) distinguishes two dimensions of individual empowerment, material and psychological, where he basically separate tangible from intangible empowered outcomes. He shows that community members of an agricultural cooperative in Nicaragua attained both material and psychological empowered outcomes. The former included jobs, food, personal fields, financial returns, collateral for bank recognition and credit, and use of common corporative resources, while the latter entailed building of self-esteem and self-confidence, raising consciousness, and developing a sense of ownership of the cooperative.

Organizational empowerment relates to workplace settings and behaviors, which as indicated by Larkin et al. (2008) is defined by Kanter's (1993) theory of structural empowerment which highlights empowering processes as those providing employees with access to information, resources, support, and opportunity to learn and develop. As these ensue employees gain psychological empowerment, including feelings of competence, autonomy, job meaningfulness, and an ability to impact the organization.

Community empowerment refers to collective action to improve the quality of life in a community and to the connections among community organizations. Empowering processes at this level may include collective action to access government and other community resources (e.g., media), and broader participation in the actions of the group (Perkins & Zimmerman, 1995). According to Sadan (2004) such processes create a sense of responsibility, commitment, and ability to care for collective survival, as well as skills in problem solving, and political efficacy to influence changes in environments relevant to their quality of life. Societal or structural empowerment is realized when the larger political decision-making system allows some measure of meaningful local control (Perkins & Zimmerman, 1995). This can be in the form of methodical intervention or professional activity aimed at developing processes of increased control for those individuals and communities in whose lives such larger systems intervene (Sadan, 2004). This level of empowerment encourages processes of both individual and community empowerment. Kroeker (1995:760) shows that an agricultural cooperative in Nicaragua, which was part of a national movement, had some societal empowered outcomes which included: successfully demanded autonomy, an increase in technical

services, more adequate regional and national representation, and large changes in land reform policy and process.

Empowerment has become a popular goal in many areas of development (e.g., minority groups and women studies, organizational behavior, community development, poverty alleviation and rural economic diversification). With the same motive, the concepts of co-management or collaborative governance and public participation, especially the involvement of local communities in management control and benefit sharing, have attracted significant attention in contemporary natural resource management where the aim is to build positive relationships and synergies between conservation and development. The extent to which these philosophies convert in to practice warrants investigation in order to, among other things, understand their success including processes mediating this on the ground. It is particularly interesting to examine if and how empowerment in the conservation arena is operationalized at the household level and how that relates with community empowerment.

Social Exchange Theory

Social exchange theory (SET) started to evolve in the late 1950s with four figures; George Homans, John Thibaut, Harold Kelly, and Peter Blau, particularly the former scholar who is its originator (Cook, 1987; Emerson, 1976). The theory is informed by the disciplines of sociology, psychology, economics and anthropology which all come from the diverse backgrounds and interests of its developers. It is tied to rational choice theory and features many of its main properties like the notion of rational and self-interested human actors. However, with SET the rational activity happens among several individuals therefore giving rise to social interaction that takes the form of social exchange. With its main elements of social exchange, rewards, social relations, trust,

commitment, and behavior change (Figure 2-2), SET attempts to explain what prompts people to engage in certain activities, relationships or behaviors (Zafirovski, 2003). Specifically, it uses the notion of costs and benefits to show that various behaviors results from the exchange opportunities or rewards. Guillet's et al. (2002) work demonstrates that human behavior is governed primarily by the desire to maximize positive experiences and to minimize negative ones. Thus, people participate in relationships and activities if only the outcomes of participation are sufficiently favorable, or if they anticipate accomplishing an incentive.

The theory is based on the assumption that self-interested actors transact with other self-interested actors to accomplish individual goals that they cannot achieve alone (Lawler and Thye, 1999). The exchange transactions are interdependent, reciprocal and contingent on the actions of another person. If the exchange is accompanied by rewards they generate high-quality relationships which evolve over time in to trusting, loyal and mutual commitments and eventually behavior change (Emerson, 1976; Cropanzano and Mitshell, 2005 Zafirovski, 2003). As summarized by Xueming (2002:113), "exchange partners look beyond short-run inequalities or risks and concentrate on long-run mutual gains". Reward is a generic term referring to a variety of potential beneficial (net) consequences resulting from an exchange, which can be both economic/material and psychological: pleasures, satisfaction, or enjoyment (Ekeh, 1974; Guillet et. al., 2002). For example, Cropanzano and Mitshell (2005) reveal that in the workplace rewarding social exchanges and inter-personal connections produce effective work behavior and positive employee attitudes.

As hinted above, social exchange theory has been used in a number of disciplines including anthropology, sociology, and social psychology, and its economic framework applied to a range of social relationships. Typical application is in studies dealing with organizational behavior (Cropanzano and Mitshell, 2005), sports development (Guillet et. al., 2002), human sexuality and romantic relationships (Sprecher, 1998), and customers' trust of electronic commercial transactions (Xueming, 2002). The theory is appealing as an analytical framework to assess people's motives for and barriers to engaging in conservation practices hence to aid in the development of strategies for integrated management. Some community-based social marketing strategies have been developed along these lines, which entail the promotion of tools like commitment to and participation in the desired actions by the target groups (Kollmuss & Agyeman, 2002; Monroe, 2003; Banney et al., 2006). Such strategies can be framed within the context of SET in natural resource management to encourage environmental responsible behaviors.

Summary and Conceptual Framework

Based on the empowerment theory, the study has been able to determine if the park is an institution that enables ('empowering processes') social development and subsequently biodiversity conservation, in terms of enabling people control over and access to livelihood resources. Focus was on determining if the park is empowering at both the household and community levels, mainly the former. Empowering indicators for consideration were such as opportunities and choices (or constraints) the park provides for the benefit of people's livelihoods as well as avenues it creates for public participation in park governance and biodiversity conservation. Empowered outcome measures were in the form of people's perceived ability to control, actual ability to

control, access to resources (e.g., natural, fiscal and social), skills developed, and participation in governance and conservation of the park estate. Viewing the park's 'empowering processes' and 'empowered outcomes' as a social exchange between the park and people, the study complemented empowerment theory with social exchange theory to explain how people are subsequently motivated (or not) to support and participate in conservation of the protected resources. Overall, these theories enabled the study to determine if there are positive feedbacks between conservation and development, and of equal importance the factors underlying these and the implications. Figure 2-3 below shows a hypothetical model of these contentions.

Literature Review

With special reference to Africa, the review focuses on parks and how they link with people's livelihoods and participation and input in biodiversity conservation. It explores rural livelihoods in relation to control over and access to resources, parks as institutions for management of common property resources, and the theory and practice of community conservation and development. People's conservation attitudes, perceptions and behaviors are also reviewed together with the factors fueling the state of affairs. The review concludes by identifying gaps in the literature that the present study seeks to address.

Rural Livelihoods and Control over and Access to Resources

Rural livelihoods in developing countries are persistently dependent on natural resources (Byaruhanga, 2008; Chandool, 2007; Ellis & Freeman, 2004; Iftekhar, 2006; Mbaiwa, 2008). In the semi-arid savannahs of Africa these resources include a variety of wildlife species and their habitats, which also provide a multiple of goods and services including pastures for domestic animals, and food, construction and medicinal

products, as well as ceremonial grounds for people (Campbell, 1985; Cole, 1986; Crove, 1995; Fabricius et al., 2004; Kgabung, 1999; McNaughton, 1985). The importance of keeping a balance between this natural resource base and human needs and values cannot be overemphasized (Groom et al., 2006; Picou & Marshall, 2002; Matthews & Selman, 2006; WCED, 1987). Most of these resources are common pool resources generally held under state control, with local residents enjoying only usufruct rights over land and resources (Ankerson & Barnes, 2004; Barnes, 1998; Hulme & Murphree, 1991; Jones & Murphree, 2004; Magole, 2007; Mulale, 2005; Murphree, 1991 & 1997; Rihoy et al., 1999). According to Murphree (1991), the basis of state control over these resources as argued by its proponents is to facilitate equity or collective societal interests. While some of the common pool resources (land) in Africa became Crownland or freehold owned by the colonial masters, the rest remained under state control mainly in two forms, the communal and stateland tenure systems. In Botswana the stateland tenure system encompasses state owned uses such as parks and urban areas while the communal tenure lands have been zoned through the Tribal Grazing Land Policy of 1975 in to communal or tribal uses and privately owned holdings, mainly leasehold ranches (Tsimako, 1991). As literature (e.g., Brockington, 2002; Darkoh, 1996 & 2003; Hulme & Murphree, 1991; Neumann, 1998; Sandford, 1983) indicates the foregoing state management approaches and policies have in most places in Africa deprived local people access to livelihood resources. For example, in Botswana the livestock policy on common pool resources has concentrated resources such as cattle ranches, veld products and water points to a few hands (Arntzen et al., 1996; Hitchcock, 1978 & 1987; Kgabung, 1999; Perkins, 1996; White 1993).

Mainstream conservation in Africa is yet another factor that has dispossessed people of their ancestral lands and related resources like wildlife and conservation benefits (Adams & Hutton, 2007; Bar-On, 2005; Blaustein, 2007; Brockington, 2002, Holden, 2007; Magole, 2007; Hulme & Murphree, 1991; Neumann, 2002). As argued by Murphree (1997), communal lands in these countries and the natural resources they support are in law unalienated state land even though individuals and groups may be using them [usufruct rights] hence people are caught up in problems of restricted access.

In consideration of the new international agenda for the elimination of poverty as reflected in the Millennium Development Goals and the objectives of contemporary natural resources management strategies of balancing conservation and development, it becomes imperative to examine if these interventions are in reality widening or facilitating people's control over and access to livelihood resources (Adams & Hutton, 2007; World Bank, 2002). As Bebbington (1999:2022) contends, the question of "access becomes perhaps the most critical resource of all if people are to build sustainable, poverty alleviating rural livelihoods". Consenting to these arguments, De Soto (2000) maintains that the most relevant way to addressing the plight of the poor is to formalize their or assign them property rights to land and other resources.

Besides eroding people's access to their traditional livelihood resources, state control has together with the adopted conservation strategies fueled overexploitation of resources and subsequently land degradation, which is now a prevalent issue in developing countries, notably the African rangelands (Arntzen et al., 1996; Darkoh, 1996 & 2003; Solbring, 1993). Land degradation stems from intensive use of the land

and other resources due to curtailment of access by state control and management strategies which in turn lead to concentration, overcrowding of people and subsequently overexploitation. The problem is also attributed to lack of enforcement of policy which in turn leads to unrestricted or open access and therefore overuse, while in other circumstances it is due to ill-conceived or irrelevant policies (Kgabung, 1999; Matthews & Selman, 2006; Mujakachi, 1997; Perkins, 1996; Rihoy et al., 1999). Chambers (1997), Murphree (1991) and Child & Murphree (2004) specifically hold management by distant governments or private institutions responsible especially as the process excludes local people living side by side with the resource, yet whose support is needed for the sustainability of the resource base. Most governments or international companies also control and own the mineral sector, a land use that has also led to displacements of people and contributed to environmental deterioration. Overall, loss of resources access and overexploitation of common pool resources has throughout Africa eroded the basis for people's livelihoods and initiated a downward spiral of marginalization, impoverishment and environmental degradation (Darkoh, 1996; Rihoy et al., 1999). This scenario is not exceptional to Africa but also transpires in many parts of the developing world. For example, Ballabh et al. (2002) in India and Iftekhar (2006) in Bangladesh show that increased state control over and exclusionist approaches to management of common pool resources and poor support systems have led to the besiege of the resource areas by several types of conflicts and issues including people's loss of resource proprietary rights and negative livelihood outcomes.

Hardin's (1968) explanation of factors surrounding land degradation, in what he theorized as 'the tragedy of the commons', has become the basis of many government

management policy of the common pool resources (Ostrom, 1999; Ostrom et al., 1999; Perkins, 1991). For example, a lot of African rangelands have been privatized to individuals with the conviction that the internalization of the costs and benefits of use to these users would urge them to use sustainably. However, as literature (Abel & Blaikie, 1989; Arntzen et al., 1996; Kgabung 1999, Murphree, 1991; Perkins, 1991; Solbring, 1993) reveals, privatization compounds the issue of exclusion and has not addressed the problem of overexploitation. An alternative explanation, is provided by Agrawal's (2001) common property theory where the contention is that people go beyond self-interest by organizing themselves in groups through concepts such as communication, trust, and binding agreements (institutions), to manage common pool resources. This thesis gives an option of collective management and has shown some promising results in some places (Ostrom et al., 1999).

Parks as Institutions for Management of Common Pool Resources

Parks have become many nations' mainstay of conserving and exhibiting their natural endowments and the associated cultural heritage. The modern day concept of a national park was first explicitly expressed with the designation of USA's Yellowstone National Park in 1872 (Adams & Hutton, 2007; Child, 2004). The Yellowstone model is built on the idea of erection of boundaries and exclusion of people in order to make parks complete islands of nature protection. For example, the establishment of the park involved forced removal of the indigenous Red Indians (Magome and Murombedzi, 2003). The model has since its inception spread to other parts of the world as designations variously known as national parks, nature reserves, game reserves, wildlife sanctuaries, and the like (Adams & Hulme 2001, Adams & Hutton, 2007; Child, 2004; (Magome and Murombedzi, 2003). The objectives and functions of parks have

been shifting in response to evolving biophysical, social and economic landscapes (Cumming, 2004). Three broad shifts have been observed in general: preservation at first, followed by an emphasis on conservation and recreation development, and then systems entailing park outreach programs for the benefit of local people. These shifts are warranted given that the resources protected by parks are valuable not only for the functioning of natural ecosystems but also for human existence and development. As noted by Child (2004), parks are common property resources held by the state on behalf of people. Two distinct approaches to management of common property resources by means of parks have been defined, the preservationist or exclusionist model on one end and the people-centered on the other.

The preservationist approach is based on the proposition that natural resources need protection from the destructive actions of people (Brockington, 2002; Pretty, 2003). It is characterized by a 'fences and fines' and 'laissez-faire' approach entailing coercive controls, eviction and exclusion of local people from the lands, and concentration of ownership rights and management authority to government bureaucrats and international conservation agencies and interests (Adams & Hulme, 2001; Holmes, 2007; Hulme & Murphree, 1999; Brockington, 2002; Brockington & Igoe, 2006). As Jones and Murphree (2004:63) contend "fortress conservation is philosophically grounded in the intrinsic values of nature and is essentially biocentric". The grounds given by the proponents of this model are, as hinted by Brockington (2002:2-3), that: it saves the environment from threats of human destruction, the evicted people are not indigenous to the areas they are displaced from, and that people are moved to where they can be provided with social services and development projects.

Fortress conservation has been adopted in many parts of the developing world including, the West Indies, India and Africa, and has posed far reaching adverse social consequences (Adams & Hutton, 2007; Adams & Hulme, 2001; Brockington, 2002; Child, G. in prep; Neumann, 2002). The model has sparked much criticism for what Brockington (2002: 3) summarizes as a harmful, unjust and unnecessary model based on western interests and ignoring local values and needs. The questioning has led to the surfacing in the past decades of an alternative approach which is more people-centered, and that is advocating for not only environmental protection but also a process that is socially and economically sensitive and inclusive (Agrawal, 2001; Agrawal & Ostrom, 2001; Child & Murphree, 2004; Hulme & Murphree, 1999; Ostrom et al., 1999; Pretty & Shah, 1997). The new approach as contested by Cumming (2004, p.106), should focus on conservation of biodiversity, providing benefits to the public, contributing to economic development, and effective management of parks. To this effect, Hulme and Murphree (1999) maintain that fortress conservation is not a viable option, and should at the very least work alongside this new conservation approach because neither biocentric nor anthropocentric can lead to effective management of common property resources. In support of this, Child & Murphree (2004) contend that with the ‘new conservation’ model local communities would have a greater interest in conserving natural resources in their surroundings more than centralized or distant government management institutions because of the potential significance of the resources to their livelihoods. Also consenting, other analysts like Kroeker (1995) argue that to substantially diminish social problems, there must be large scale structural changes as well as new psychological and community processes.

African parks: evolution, conservation models and impacts. Parks evolved in Africa during the period of the colonial rule with this authority perceiving them as the cornerstone for preserving nature and curbing over exploitation of the wildlife resource and effectively reserving it for the ruling elite (Child, G. 2002; Cumming, 2004; Hulme & Murphree, 1999; Brockington, 2002). Typically in Botswana as indicated by Campbell (1995), the establishment of parks was a response of the British Bechuanaland Protectorate government to over-utilization resulting from excessive commercial hunting by European hunters and traders and to some extent by the local chiefs and their people. Combined with these forces park designations were later reinforced by strategies such as the 1933 Convention on Fauna and Flora and the Convention on Biological Diversity (Child, G. 2002; Cumming, 2004). Thus, conservation by means of parks emerged in Africa as a purely state enforced protection and this approach was continued by the independent African governments from the 1950s and 1960s onwards (Hulme & Murphree, 1999). According to McNeely (2003), there are more than 1200 national parks, wildlife reserves and other protected areas in Africa, representing an area of more than 2million km^2, equal to 9% of the continent's total land area. Botswana has devoted about 40% of her land area to conservation, 17% as national parks and game reserves, and 22% as wildlife management areas (WMAs) (Government of Botswana, 1986 & 1990). The latter serves as buffer zones around the protected areas in which regulated consumptive use is allowed. The foregoing epitomizes the conservation setting in most of the other African countries. As literature shows the savannahs of Africa have a wide variety of wildlife resources, and were the home of the most spectacular large mammals on earth (Alexander, 2002; BONIC, 2003; Child, G.,

2002; Cole, 1986; Crove, 1995; McNaughton, 1985). The remnants of these resources which still exist in significant numbers are what constitute the protected resources in most of the savannah parks in the continent. Typically these resources include 'the big five' (lion, elephant, leopard, rhinoceros and buffalo); mega fauna aquatic species like the Nile crocodile and hippopotamus, and a variety of terrestrial ungulates species, both water dependent and water-independent. Botswana is well endowed with these resources (Alexander, 2002; Bar-On, 2005; BONIC, 2003; Perkins & Ringrose, 1996). Notably, the country has the largest and least molested elephant population which has grown from about 45,500 in the 1980s to approximately 151 000 at present (DG Ecological Consulting, 2003; BONIC, 2003). Of noteworthy about most of the protected wildlife resources is their fugitive nature showing that their ranges and habitats extend beyond park boundaries. Most African states have honored these ecological needs of the protected resources by not enclosing their parks hence the communal lands bordering parks are in reality conservation extension areas, making conservation support outside parks in these areas very imperative.

Park conservation in Africa followed the preservationist' or 'fortress' conservation approach, characterized, as highlighted above, by centralized forms of management, strict exclusion of people, prohibition of extractive uses and no linkage with social development (Bar-on, 2006; Brockington, 2002; Child, B. 2004; Child, G. 2002; Hulme & Murphree, 1999;). This scenario is not only evident on the ground but also reflected in national conservation policies. For example, the main statutory instrument governing national parks and game reserves and conservation practice in the Botswana is the Wildlife Conservation and National Parks (WCNP) Act (1992) where the key objectives

are: i) to preserve the biological and cultural heritage of the country, and ii) to allow for recreational and educational or research opportunities for the benefit of both nationals and tourists (Government of Botswana, 1992). These objectives clearly show that Botswana parks are designated for purposes of preservation, non-consumptive uses, national values, and satisfaction of tourists' interest, while local people's traditional direct values associated with natural resources (e.g., game meat, hides, veld products and pastures) are overlooked. However, recent policy developments (National Parks and Game Reserves regulations of 2000) entail provisions for community use zones within parks (Government of Botswana, 2000), but the implementation of this is yet to be realized (pers. comm. Luxson Masule [local headman], 2008). Fortress conservation has in many places in Africa resulted in adverse effects on the local people, mainly due to deprivation of birthrights to the land resource. This has in turn soured relations between the people and park officials, sparked different forms of local resistance or forced compliance out of the fear of punitive measures (Adams & Hulme, 2001; Adams & Hutton, 2007; Brockington, 2002; Child, G, in prep; Holmes, 2007; Neumann, 2002).

Parks have stimulated significant social, economic and environmental change in their surrounding landscapes (Adams & Hulme, 2001; Adams & Hutton, 2007; Barnes, 1998; Brockington, 2002; Brockington & Igoe, 2006; McNeely, 2003). The change is both positive and negative, and short-term and long-term. While parks in Africa are commended for having been able to maintain intact ecosystems, the same can not be said about their impact on broader societal welfare and social development (Hulme & Murphree, 1999; Mujakachi, 1997; Walker, 1994). The general scene in the continent depicts a lot of adverse socio-economic effects on local people which relate to

displacements and loss of resources (Adams & Hutton, 2007; Child, G. in prep; Emerton, 1999; Lusingi, 1994; Walker, 1994; Wilkie et. al., 2001; Brockington, 2002; Cumming, 2004; Struhsaker et. al., 2005). On top of these losses local people incur opportunity costs and are prohibited by law from using the protected resources. Also, while parks have socio-economic benefits, in most cases they do not trickle down to the people because ownership of tourism or recreational enterprises and facilities is restricted to the elite, government and foreign investors or interests (Hulme & Murphree, 1999). Thus, the locals do not derive any meaningful benefits from parks because they are not economically positioned to take advantage of the tourism related opportunities (e.g., Mbaiwa et al., 2007; Moswete et al., 2008; Walker, 1994). Additionally, local people continue to suffer from a number of negative externalities of living side by side with wildlife. For example, literature (e.g., Hoare, 2000; Kalahari Conservation Society, 2003; Sitati et al., 2005; Tchamba, 1996; Thouless & Sakwa 1995) reveals a persistent elephant-human conflict around several protected areas in Africa as people continuously contend with elephants destroying their crops and other properties such as farm fences, borehole equipment, threatening their lives, and competing for foraging and water resources. Elephant impact is a key issue around some parks in Botswana which leaves local communities very frustrated and increasingly criticizing the government, while on the other hand, the country is acclaimed by mainly international agencies for protecting this resource, and is indeed compelled to keep the status-quo by CITES (Kalahari Conservation Society, 2003; Mbaiwa et. al., 2003). The sectoral and 'laissez-faire' approach to management of this species is also detrimental to habitats and biodiversity (Barnes, 2001; Herremans 1995; Skarpe et al., 2003; Walker et. al.,

1981; Western & Maitumo, 2004). The ‘elephant problem’ (Caughley, 1976) remains a contentious issue in the African rangelands, especially in the southern African elephant range states where elephant numbers have risen following CITES’ ban on international trade in elephant products in 1989 (DG Ecological Consulting, 2003).

Community Conservation and Development

The shortcomings of state control over common pool resources have led to a consensus that effective management requires the involvement of local people, not just as individuals but as a collectivity (Agarwal, 2001; Agrawal; 2001; Ostrom et al., 1999). The approach is about giving the most vulnerable greater choices to reduce the risks they face and increase their ability to best use the assets they possess (Soussan et al., 2003:2) and concerns development processes that views local people as partners and actors not just as passive beneficiaries (Chambers, 1983 & 1997; Child & Murphree, 2004 & 2006). It also emphasizes the need for ‘horizontal’ social relationships and higher levels of participation in social organizations and networks that cut across the boundaries between different institutions and social groups (Bebbington, 1999:2030). Thus, involving people in decision making not only benefit the environment but also enable people to take charge of their lives including attainment of economic incentives and such social effects as greater self-confidence and sense of cohesion in communities, reduced conflicts over resources, and new rapport or trust between local people and external institutions and professionals (Agrawal; 2001; Ballabh et al., 2002; Pretty & Shah, 1997; Ostrom et al., 1999). The aim is to generate a new partnership where communities feel natural resources have a role to play in their lives and that they have a role to play in conserving the resources (Child & Murphree, 2004; Hulme & Murphree, 1999). There is a great variety of collective management strategies, depicting

different conditions and types of what is now commonly referred to as community conservation (Child & Murphree, 2004). Hulme & Murphree (1999) categorizes them where at one end, is a totally community-centered approach whereby there is complete transfer of management authority and property rights over natural resources to local communities. Initiatives that come closest to this strand are CBNRM programs which take the form of community-based organization (CBO) established through a deed of trust in Botswana, CAMPFIRE projects in Zimbabwe and the conservancy model in Namibia. Another strand includes programs that in the form of integrated development & conservation projects (IDCP's). The third strand emphasizes park outreach strategies, the motive being to make parks and people good neighbors, although without community proprietorship of the conservation estate. Park outreach strategies may involve revenue sharing, public relations, conflict resolution, and community development. As indicated by Hulme & Murphree (1999) and Ostrom et al. (1999), none of these strands is a quick fix to common property management issues, and for effectiveness all require institutional structures that are diverse and specific to the conditions of each situation.

Both good and bad cases of grassroots involvement in control over common pool resources and sharing of conservation benefits have been reported. For example, the Nepal's parks and people's program has resulted in frequent and intense interactions between local residents and park officials (Agrawal & Ostrom, 2001). Also, through this decentralization process, residents can legally use some park resources such as fodder for a certain period in a year, though they have little influence on management or conservation outcomes. Further, the authors report that community conservation

strategies in India have enabled rural residents of Kumaon rights not only to access and use local forests but also to claim or exercise proprietorship. Best practices are also revealed by Ostrom's et al. (1999) study where efficient management of common property irrigation systems by farmer groups in Nepal is revealed. These successes are attributed to, among other things, the fact that the collective management processes are based on locally crafted rules and evolved norms. Also, as noted by Agrawal & Ostrom (2001), conservation officials appreciate the fact that consumption pressures generated by the poor have the potential to adversely affect the integrity of the resource base. In spite of these positive results, the effects of parks in Nepal on livelihoods are shown to have been limited (Agrawal & Ostrom, 2001). Zimbabwe's Communal Areas Management Program for Indigenous Resources (CAMPFIRE) program is another shining example of successful community conservation, and has become a reference model for other countries. In contrary to state management, CAMPFIRE has led to increased wildlife and economic benefits for the local residents (Child, 2004). Lepp's (2004) study reveals a success story in Bigoli in Uganda, whereby locals have been given a habitat (swamp) to control and use, and are effectively managing and sharing benefits. Also in Uganda, there is community conservation (park outreach) program at Mgahinga National Park through which local residents are allowed to extract park resources, and a 'multiple use zone' has been demarcated, and development projects and revenue sharing program established for their benefit (Adams & Infield, 1999).

In Botswana, community-based organizations (CBO) trust communities attain benefits related to CBNRM wildlife and tourism activities permitted in the controlled hunting areas bordering the parks (Arntzen, 2003; Jones, 2002). However, problems of

mismanagement of funds, lack of accountability and capacity, favoritism, and lack of broader participation are reported in a lot of cases. Arntzen et al. (2003) comment: "…real empowerment is yet to be achieved. The transfer of power has by and large been to the Boards or governance structures of organizations". Additionally, while there are significant revenues accruing to CBNRM trust committees, these do not trickle down to household level hence the projects do not have any significant effect on local livelihoods. Similar to the aforementioned CBNRM projects, significant benefits are reported from park-related tourism activities, but local people do not derive anything meaningful because tourism ventures are unaffordable to them (Bar-on, 2006; Kalahari Conservation Society, 2003). Overall, grassroots representation in environmental decision making in general is very minimal in Botswana because of the dominance of state control and ownership (Bar-on, 2006).

Conservation Attitudes, Perceptions and Behaviors and Influencing Factors

Local people display several forms of behaviors towards conservation, positive, negative and so on. Positive behaviors include conservation oriented actions such as participation in conservation programs (e.g., conservation education, conservation clubs), environmentally sustainable practices, policing of illegal behaviors, cooperation with authorities, and environmental awareness building (Agrawal & Ostrom, 2001; Byaruhanga, 2008; Abbot et al., 2001; Lepp, 2004; Ostrom et al., 1999). In the studies reviewed, participation in conservation programs tends to be the main form of positive behavior which is accompanied by conservation results. Jones (2002) shows that through the CBNRM program Chobe enclave communities residing close to the park participate in management of problem animals, mainly elephants. Negative behaviors include unlawful actions, for example, poaching, illegal grazing and collection of

protected resources, and brutal acts on animals [e.g., killing with poison and wire snares] and burning (Byaruhanga, 2008; Brockington, 2002; Gibson, 1999; Hoare, 2000; Neumann, 1998, Thouless & Sakwa, 1995). Another group of behavior takes the form of resistance movements and lawsuits in pursuit of purportedly deprived resource rights, and which may entail violent actions. There have been lawsuits and claims for land lost to protected areas in many countries, for example, in South Africa, Botswana and Tanzania, and in most cases involving indigenous people (Brockington, 2002; Jones, 2004; Magole, 2007). Some free-riding and cheating behaviors have been reported in Nepal, whereby some residents near parks would use the resources beyond the allowed limits (Agrawal & Ostrom, 2001). Conservation attitudes are shown to be mixed as well. Studies across Africa indicate growing conflict and resentment between people and conservation effort, and an erosion of local support for conservation (Brockington, 2002; Brockington & Igoe, 2006; Byaruhanga, 2008; Cumming, 2004; Hoare, 2000; Holmes, 2007; Sitati et al., 2005; Thouless & Sakwa 1995). For example, conflicts between local communities and elephants are reported to escalate as elephants increasingly raid crops, destroy properties and endanger people's lives (Walker, 1994; Kalahari Conservation Society, 2003; Tchamba, 1996). As Tchamba (1996) highlight in the case of Waza National Park in Cameroon, these conflicts will worsen unless the control of the 'problem animals' and the management of the park are improved, a conservation education program is developed, and adequate compensation scheme designed.

Positive attitudes towards conservation and protected resources have been reported in various places and are often associated with tourism benefits to people (Arjunan et al., 2006; Lepp, 2004; Groom & Harris, 2008; Sekhar, 2003).

Literature supports the conviction that people benefiting from natural resources or involved in environmental decision making will be motivated to conserve or will display favorable attitudes. For example, cases from different parts of the world show that the primary reason for negative attitudes and behaviors is the fact that modern conservation strategies have taken away control and custodianship of resources from people and on top they incur more costs than benefits related to conservation (Brockington, 2002; Cumming, 2004; Hulme & Murphree, 1999; Sitati et al., 2005; Sekhar, 2003; Shrestha & Alavalapati, 2006; Walker, 1994). Mbaiwa et al. (2003) show that while the local chiefs and people in Botswana are equally concerned about wildlife declines, on the other hand they feel that the laws implemented deny them access and rights to their wildlife. Even where people derive benefits from conservation (e.g., through park outreach programs) they have no say over park management (Adams & Enfield, 1999; Hulme & Murphree, 1999). Although the park buffer zone residents in Nepal have become authorized entrants and users (from being illegal users), conflict with park officials occur regularly because of partial devolution of property rights (Agrawal & Ostrom, 2001). Likewise, government dominance is an issue with CBNRM projects in Botswana, and together with this there are such conditions as lack of capabilities (e.g., skills and knowledge) and financial resources to venture in to tourism enterprises which all influence local conservation support (Kalahari Conservation Society, 2003; Mbaiwa, et al., 2007). Generally, laws and penalties are still the mechanisms for conflict resolution

for even incidences such as poaching by subsistence hunters instead of using collaboration and people-oriented ways. Other factors influencing negative attitudes and behaviors are such as authorities' lack of communication and knowledge sharing with local people, unequal distribution of conservation benefits, poor consideration of local social capital resources like trust, norms and relations, and dependency on natural resources, (Agrawal and Ostrom, 2001; Arjunan et al., 2006; Pretty & Shah, 1997:54; Ballabh et al., 2002; Ostrom et al., 1999; Sekhar, 2003). Struhsaker et al. (2005) find inadequate international assistance (funding) and government support to compromise effective management of protected areas and positive public attitudes towards protected areas.

Perceived benefits, socio-economic status, sex, age, inclusion of locally crafted rules and norms, involvement of local people in environmental decision making are among factors influencing positive attitudes and behaviors (Agrawal and Ostrom, 2001; Arjunan et al., 2006; Byaruhanga, 2008; Chandool, 2007; Lepp, 2004; Garner et al., 2001; Groom & Harris, 2008; Ostrom et al., 1999). For example, residents of Bigoli in Uganda are actively involved in conservation of a swamp and express positive perceptions about its value because they have the rights to manage and use the resource (Lepp, 2004). The same residents expressed passive and negative perceptions when asked about the impact of the nearby Kibali National Park on their livelihoods because they are not involved in the control of the park. Other than the foregoing factors, as shown by Kuriyan (2002) in the Samburu in Kenya, positive cultural perceptions and traditions (indigenous technical knowledge) are found to be a

viable compliment of economic incentives in promoting positive conservation behaviors and attitudes.

Summary

Significant data has been generated on rural livelihoods and how they have been shaped by the different approaches to management of common property resources. Two major approaches, the fortress conservation model and the collective management strategy, have been revealed, including their evolution, rationale and effectiveness. The review shows that the fortress model which is biocentric and characterized by centralized control and exclusion of people and disregard of their customary resource rights has evolved during the colonial era still reigns in most places. While a promising approach that emerged as an attempt to balance conservation and development and to address limitations of the fortress model, the collective management strategy is still at an infant stage and struggling to take over state control due, in most cases, to lack of enabling institutional environment. The review also indicates a mixture of responses towards conservation interventions, from negative and positive attitudes and behaviors to resistance movements and lawsuits. A number of factors are held responsible for these responses including the costs and benefits of conservation to people and their involvement in environmental decision making, the type of management norms and institutions adopted, level of dependency on natural resources, socio-economic status, etc. In spite of this valuable data, most of the research has been based on generalizations or biased towards particular phenomena and places therefore leaving information gaps. This particularly applies to Botswana where the following gaps have been noticed:

- Existing research does not reveal a complete picture including park effectiveness with respect to maintenance of ecological integrity, promotion of economic growth and social empowerment and equity because previous studies have focused mostly on assessing park performance in terms of ecological sustainability (e.g., BONIC, 2003; Fullman, 2009; Herremans, 1995; Skarpe et al., 2003), and occasionally, economic returns in general.

- There is lack of empirical data relating to factors underlying the significance and distribution of park-based economies and impacts because most of the research literature is an amalgam of dichotomy concerning winners and losers – i.e., who benefits, controls and has proprietorship of the park resources. To date, no one has explored the validity, causes and implications of this in Botswana. Related studies on the subject have been limited to, for example, explaining the livelihood impacts of tourism development (e.g., Mbaiwa, 2008), the performance of CBNRM projects (e.g., Arntzen et al., 2003; Jones 2002), the extent of use of park resources (e.g., Lepetu, 2007), level of involvement local people in tourism in general, not necessarily park related (e.g., Mbaiwa et al., 2007; Moswete et al., 2008), and factors influencing elephant-human conflicts (e.g., Jackson et al., 2008).

- Additionally, there is no empirical evidence relating to practices people display towards conservation of the protected resources in Botswana other than generalizations or reports that are not based on methodical research (e.g., Mbaiwa et al., 2003). Studies relating to people's responses to conservation interventions have rather been focused on attitudes (e.g., Kalahari Conservation Strategy, 2003) and while in some instances these responses are associated with conservation impacts, often the conclusions are based on assumptions. Thus, no study has empirically tested the direct relationship between park livelihood impacts and conservation behaviors in Botswana.

- In most cases only negative attitudes and behaviors are emphasized therefore leaving out other types of responses such positive, subtle, indirect, or behaviors that are not action-oriented.

- Most of the existing research focused on the influence of conservation strategies at either community level (e.g., community-based organizations) or the household level. It is interesting to examine how the impacts of conservation interventions differ and relate at both these levels.

The present study aimed to fill these information gaps, by adopting the case of Chobe National Park and its hinterland communities to investigate the extent to which the positive feedbacks and synergies between conservation and development that are emphasized in Botswana's conservation policy are operationalized.

Table 2-1. Typical empowered outcomes at different levels of empowerment

Level of Empowerment	Empowered Outcomes or Characteristics
Individual	- Enhanced personal control [perceived ability to control and actual ability to control - Developing personal consciousness [critical understanding of one's environment] - Decreasing self-blame - Assuming personal responsibility [proactive approach to life] - Skills: developing strengths, sharing in power, respect, resource mobilization
Community	- Evidence of pluralism and broader participation - Existence of organizational coalitions - Increased access to essential community resources - Developing Group Consciousness (e.g. recognizing shared feelings and experiences) - Skills: resource mobilization, working to see commonality between members
Societal, Structural, or Political	- Influencing or challenging national policies or processes - Consciousness building - Skills: advocating, taking action, educating - Increased control and resource access - Increased autonomy

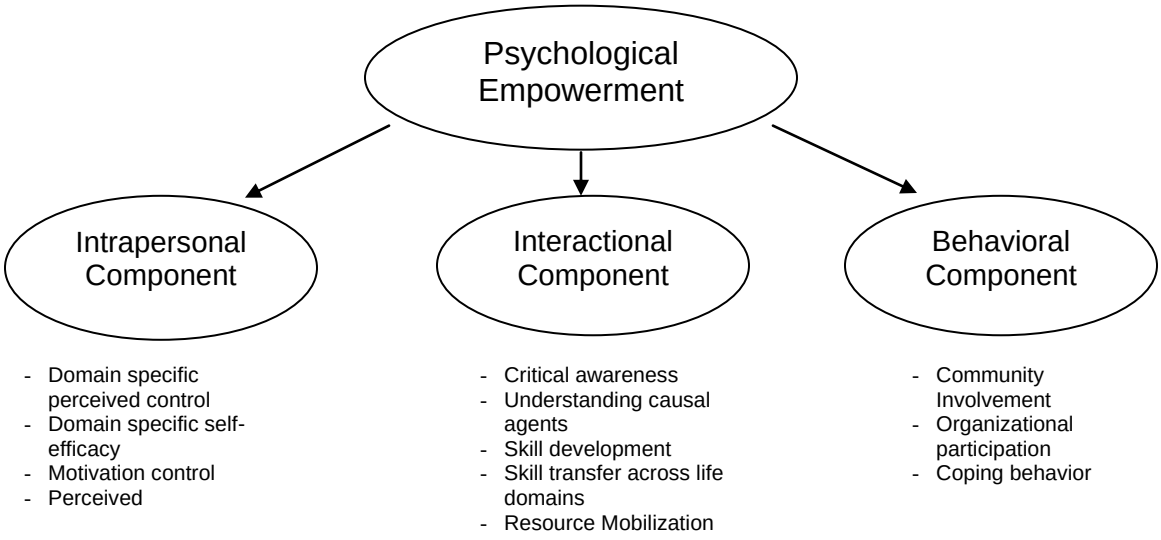

Figure 2-1. Nomological network of psychological empowerment (Zimmerman, 1995, p.588)

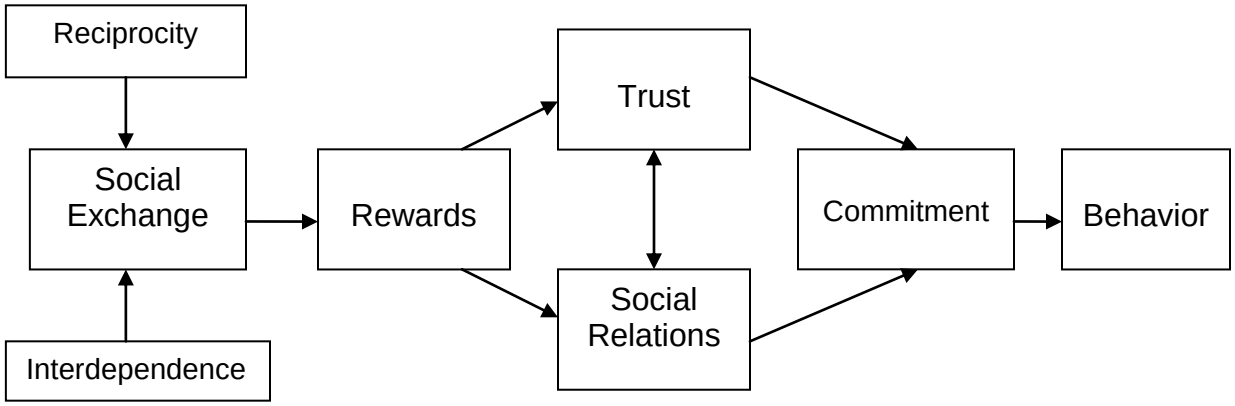

Figure 2-2. Conceptual map of the social exchange theory

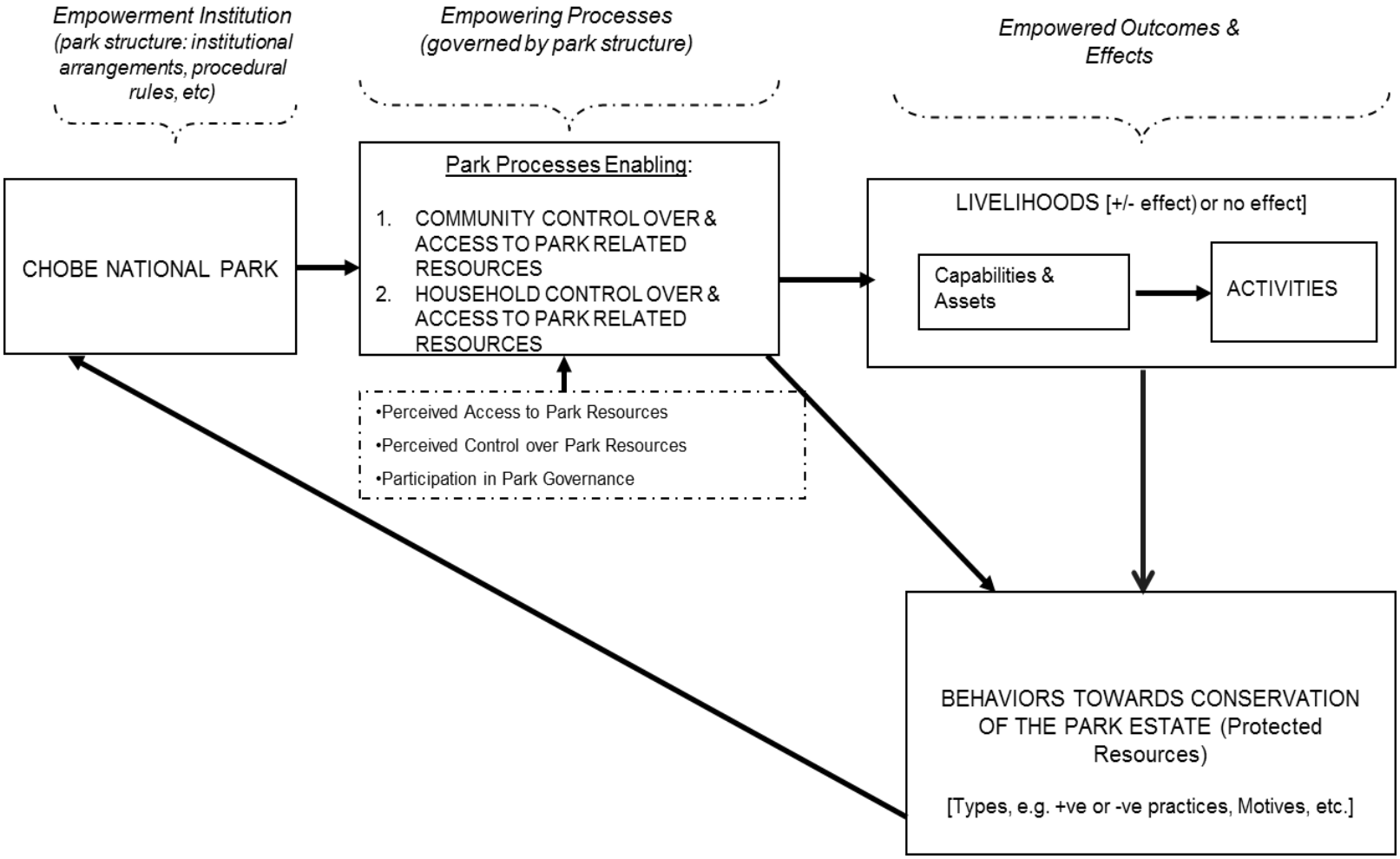

Figure 2-3. Conceptual model to operationalize the influence of the park on people's livelihoods and conservation behaviors

CHAPTER 3
RESEARCH METHODOLOGY

This chapter describes the design, methods and procedures that were employed to collect and analyze the data for this study. A mixed method approach was adopted combining both quantitative and qualitative data collection and analysis techniques. Altogether, the study involved descriptive, comparative, correlational and analytical research.

Setting

The study site is Chobe National Park in northern Botswana and the communal lands and settlements in its hinterland (Figure 3-1). The area covers the entire Chobe District. The park is located on the banks of a perennial water course, the Chobe River, which is also a trans-boundary resource between Botswana, Namibia, Zambia and Zimbabwe. From Botswana, the Chobe River converts in to the Zambezi River to feed into Victoria Falls. The Chobe National Park was established in 1961 and is the second largest in the country (Alexander, 2002; Child, in prep.). It is situated within the second most important wildlife and tourism area in Botswana after the Okavango Delta (Jones, 2002). The area is teemed with diverse wildlife species with thriving populations, among them Africa's mega-fauna mammalian species including elephant, hippo, buffalo, lion, leopard, giraffe and several ungulate species. A major feature of the park is its elephant population which constitutes a significant portion of the Kavango-Zambezi transboundary region's head (the world's largest known herd), and which has grown from about 45,500 in the 1980s to approximately 120,000 in 2002 and 151,000 at present (DG Ecological Consulting, 2003; BONIC, 2003; Blanc et. al., 2007). In addition to these; the Chobe area has a variety of habitats including acacia woodlands, riverine

woodlands, lush flood plains, and grasslands which provide different scenic landscapes (Alexander, 2002). These natural endowments constitute the primary features of Chobe National Park which are used for different non-consumptive purposes, including tourism, education and research.

Like other national parks and game reserves in the country, Chobe National Park is state-owned or controlled and its governance is guided by set government policies. Among the major regulatory instruments for parks in Botswana is the Wildlife Conservation and National Parks Act of 1992 (Government of Botswana, 1992). Department of Wildlife and National Parks is the key authority implementing park policy. Additionally, Local Advisory Committees (LACOM) have been instituted at the district/regional level to collaborate with DWNP. LACOM membership is drawn from DWNP, relevant government departments (e.g. Department of Tourism and District Council), private sector, NGOs, tribal authorities, and local communities (Ministry of Local Government, Lands and Housing, 1997). Grassroots involvement in management of natural resources is instituted through the establishment CBNRM Trusts which are governed by the CBNRM policy and other related statutory instruments.

Besides Kasane which is located at the gate of the park, settlements in the study area fall in to two cluster communities, one to the west of Kasane and the other to the south east (see Figure 3-1). The cluster to the west is known as the Chobe Enclave and is made up of five settlements: Mabele, Kavimba, Kachikau, Satau and Parakarungu. There are three settlements in the south east cluster, namely, Kazungula, Lesoma and Pandamatenga. All the settlements in the study area have a rural setting except for the emerging urban area of Kasane-Kasungula. Key socio-economic activities in these

settlements in general include rain-fed crop production, livestock production, tourism-based industries, government employment, commercial enterprises, small to medium scale industrial activity, wage employment and irrigation farming in the Pandamatenga farms (CDDP, 2003/7). Literature notes changes in trends of some of the socio-economic activities in the area. Tourism in particular is reported to have undergone a considerable boom in Southern Africa since the early 1990s. According to Department of Tourism (2006), Botswana and South Africa specifically have experienced significant growth rates in international tourist arrivals that have far exceeded global levels. Chobe District is one of the top tourist destinations in Botswana and has witnessed a mushrooming of different types of tourism developments including international hotels, big tour operating services and upgrading of the local airport (CDDC 2003/7). Community-based natural resource management in the form of community trusts organizations have emerged in the study area alongside the tourism developments. There is CECT (the Chobe Enclave Conservation Trust) which is made up of the five Chobe enclave cluster communities, the Kalepa Trust, constituted by the eastern cluster communities; Kazungula, Lesoma and Pandamatenga, and lastly the newly established Seboba Trust for the community or settlement of Kasane. Contrary to the tourism growth witnessed in the study area, agriculture is reported to have stagnated if not dwindled (CDDC 2003/7). While this area receives the highest amount of rainfall (650mm average per annum) in the country, its agricultural potential is compromised by conservation uses and elephants foraging activities (Ministry of Local Government, Lands and Housing, 1997).

The socio-economic setting in Kasane differs from the rest of the other settlements. This is so because, in addition to being the hub of tourism and business activities, it is the headquarters of the district at which all government administration and service provision centers are based. Development level of the settlements, in terms of the order of goods and services they have, differs too. For example, while all the settlements have basic amenities or are within reasonable access to the amenities, some have more and higher order goods and services. The settlements are accessible by tarred or all weather unpaved roads. However, most of the unpaved roads, especially in the enclave are often rendered unusable during floods. In short, in terms of size and function, all settlements in Chobe District are classified as tertiary except Kasane which is secondary (Chobe District Development Plan, 2003; CSO, 2001, National Settlement Policy, 1991).

Similar to all rural communities in Botswana there are various community level bodies (CLBs) in settlements in the study area all of which, in one way on the other, dealing with social development and livelihood related issues. They are such as traditional authorities, village development committees (VDC), village extension teams (VETs), farmers' associations, crime prevention committees, AIDS committees, CBNRM Trust committees, and lobby groups.

Study Participants and Sampling

The key population this study is generalizing to is communities or people living adjacent protected areas. Three settlements; Kasane, Kachikau and Parakarungu, were sampled from communities in the catchment of Chobe National Park. The selection of these settlements was based on proximity to the park, level of economic development or urbanity, and length of CBNRM experience. These factors constitute the main

confounding variables of the study (Ary et al., 2006; de Vaus, 2006; Rubin & Babbie, 1997). Figure 3-1 illuminates the relative proximity of the study settlements to the park. Kasane is closest (actually it is at the key entrance to the park) followed by Kachikau then Parakarungu. Even though relatively more distant from the park boundary, Kachikau and Parakarungu are located within key or more pristine wildlife habitats. Urbanity is very high in Kasane, low in Kachikau, and very low in Parakarungu. On the other hand, a CBNRM organization Seboba has just emerged (still in the formative stages) in Kasane while Kachikau and Parakarungu are part of the five communities constituting CECT (the Chobe Enclave Conservation Trust), a CBNRM organization that has been in operation since the early 1990's.

Two groups of participants were involved in the study, both drawn from the three sampled settlements. The first group was made up of household heads (or their representatives of 18 years or more) while the second composed of key informants: mainly representatives from community level bodies (CLBs) with livelihood or conservation related mandates and relevant local authorities. CLBs that were represented included: village development committees (VDCs), CBNRM Trust committees, tribal authority (chief or headmen), crime prevention committees, farmers' associations, and lobby groups. Comparative groups of households and key informants were selected from each of the study settlement. Households were sampled using a systematic random sampling technique. This sampling approach was deemed fit for the study area's rural setting, notably that of Kachikau and Parakarungu where lack of house numbers, proper streets and haphazard arrangement of residences made application of alternative methods like simple random sampling impracticable (Bryman & Cramer, 2005).

Somewhat of an unconventional approach to the determination of the sample size was adopted in consideration of the huge disparities in the number of households between the three study settlements and in the bid to ensure that all the settlements were reasonably represented. The aim was to estimate a sample large enough to have a small effect size for random data in regression analysis (Field, 2006). According to this author, a sample size of around 500 in regression with three predictors would be reasonable. On this basis and as was also dictated by field resources, the study targeted a sample of about 500 made up of 15% of Kasane households and 40% from each of Kachikau and Parakarungu. However, as shown in Table 3-1 altogether a total of 473 surveys were conducted from the three settlements, approximating 20% of the total number of households in the three settlements (CSO, 2001). It is clear from the table that two thirds of the surveys were undertaken in Kasane, the objective being to cater for the expected diversity of answers (e.g., livelihood activities). Out of all the questionnaires that were completed (473) only 417 were usable for analysis. The reasons for this response rate (88%) included interview refusals, incomplete surveys (i.e., those missing significant amount of data) and in some cases absence of eligible respondents despite appointments and repeated visits. A non-probability purposive sampling was adopted in the selection of the key informants. Thus, the participants were selected because by virtue of their expertise or mandates they were expected to hold rich information or experiences related to the phenomena under investigation (Creswell & Clark, 2011; Patton, 2002). Altogether twelve key informants were sampled, comprising representatives from community level bodies, and relevant local authorities including Department of Wildlife and National Parks (see Table 4-14).

Operationalization of the Study Variables

As indicated by de Vaus (2006), concepts or variables are not directly observable, hence there is need for identification of measurable indicators that can be observed on ground. The discussion that follows describes how the study variables were converted in to measurable indicators and subsequently scale items or questions that were compiled in to the survey instrument (see Table 3-2 & Appendix A). All the variable or construct scales were developed by the researcher. However, the determination of the scale items (variable indicators) was guided by existing literature including studies similar to the present and the theories underpinning the study. Five variables were measured. Three; perceived control over park resources, perceived access to park resources, and participation in park governance, serving as independent variables while livelihood effects of the park and conservation behaviors constituted the intermediate and outcome variables respectively. Additionally, variables that could confound the role of the independent variables were identified and addressed when selecting comparative groups of the study (see sampling section above). They included proximity to park, level of development or urbanity, and length of CBNRM experience. That is, the study also relied on pre-existing variations in the independent variables and the extent to which these differences are associated with variation in the outcome variable (Babbie, 1997; Ary et al., 2006; de Vaus, 2006).

Perceived Control over Park Resources

This variable was measured with a set of perceptions rating the degree of household control over park resources on a 5-point scale of absolutely no control (1) to complete control (5). The measurement was executed in four dimensions: 1) perceived control over wildlife, 2) perceived control over tourism activities or income, 3) perceived

control over park decision making processes, and 4) perceived control over park governors. Eight scale items resulted from these. Measurement scales used for this variable are similar to those adopted by Ajzen (2002), Hrubes et al. (2001), and Madden & Ajzen (1992). The measurement of this variable was preceded by the elicitation of control factors using a checklist. Control factors are those factors facilitating (easing) or impeding (making it difficult) the performance of a behavior, in this case control over park resources (Ajzen, 2002:13). As elucidated by this author, typical items for determining the control factors would be*:* 1) what factors or circumstances would enable or make it difficult for your household to exercise control over park resources, and 2) are there any other issues that come to mind when you think about the difficulty of performing the behavior. Control factors used in this study related to park institutional operational structures.

Perceived Access to Park Resources

Park resources in question were: 1) wildlife, 2) tourism activities or income, and 3) park management bodies. To measure this variable a set of positive and negative belief statements relating to the ability of a household to access or make use of these resources to earn a living was used. The positive beliefs statements related to factors facilitating access and the negative ones factors impeding access. Both sets of beliefs, facilitating (positively worded) or impeding (negatively worded), were assessed with a 5-point scale: definitely false (1) to definitely true (5). Negatively worded scale items were reverse coded before computing total scores for the scale (i.e., variable scores) so that lower scores indicated lesser access and higher scores more access (Field, 2005; Pallant, 2007). A couple of studies, including Ajzen (2002) and Beedell & Rehman (2000) aided the construction of self-efficacy beliefs or items for this variable scale.

Participation in Park Governance

Factual data about household level of participation in various activities or responsibilities relating to park governance was collected. Altogether there were eleven indicators for this variable measured on a 5-point scale including; never (1), rarely (2), sometimes (3), often (4) and always (5). As indicated in earlier chapters there are three bodies involved in management of the park resources, namely: DWNP, LACOM and CBNRM Trusts. Participation in park governance was therefore measured relation to whether a household member has ever served in these authorities or been involved in the execution of their mandates or duties. Measurement of this variable also included an open-ended question aimed at determining how satisfied people are about the level of grassroots involvement in park governance and the reasoning for this.

Livelihood Effects of the Park

In line with existing literature (e.g., Adams & Hutton, 2007; Brockington & Igoe, 2006; Chandool, 2007; Lepp, 2004; Magole, 2007), operationalization of the livelihood effects of the park was based on the fact that the pack impacts can be positive, negative or neither, and may be stimulated by the park's primary and secondary resources or uses as well its operational and institutional structures. Given this, factual data was collected on the variable in the form of the extent to which households: 1) are involved in tourism related socio-economic activities, 2) attain park related benefits, and 3) experience park related costs. Checklists of effects or questions were developed for each of these dimensions to which respondents indicated the magnitude of occurrence on a 5-point scale from 1 (low magnitude) to 5 (high magnitude). Involvement in tourism related activities and park benefits constituted the positive effects of the park while on the flipside were the park costs. The extent of household involvement in a tourism

activity was measured with a not at all involved (1) to very involved (5) scale while the experience of a park benefit or cost was determined with a not at all so to perfectly so scale. Scaling was reversed for negative effects of the park such that higher scores indicated smaller or no park costs (see Appendix A). In other words, for the negative effects the scale codes denoted the opposite as follows: 'perfectly so' was symbolized by 1 and 'not at all so' by a code of 5. This was effected for purposes of allowing correct computation of the aggregate scores of the variable scale items; therefore the measures which were eventually used to determine the extent to which the livelihood affects were favorable. Thus, after reverse scaling the negative effects and calculating the aggregate scores (i.e., the variable scores), the favorability of the livelihood effects was connoted as follows: 1=Very Unfavorable, 2=Unfavorable, 3=Sometimes, 4=Favorable and 5=Very Favorable. Favorability of LEs factors in the type and magnitude of the LEs. LEs are more favorable when there is higher occurrence of positive effects and lower negative effects, and less favorable with higher occurrence of negative effects but smaller positive effects. Open-ended questions were included when measuring of this variable, which were mainly geared at examining the overall effect of the park to household livelihood as well as to capture the different types and magnitude of the effects as described by the people.

Conservation Behaviors

Focus was on self-reported behaviors (as opposed to observed behaviors), which were measured in three dimensions including: 1) compliance with conservation rules, 2) participation in practices promoting conservation, and 3) engagement in practices counteracting conservation or negative behaviors. Using checklists for each of these groups of behaviors respondents were asked to rate the level of household performance

of the behavior on a 5-point scale ranging from not at all so (1) to perfectly so (5). Altogether fifteen items were used to measure the variable. Negative behaviors were reverse coded before calculating composite scores for the variable such that higher scores on the variable indicated more positive behaviors and lower scores less positive or more negative behaviors. There was also an open-ended question meant to determine motives for negative behaviors. Operationalization of this variable was based on different sorts of conservation promoting or impeding behaviors as described by multiple sources (e.g., Beedell & Rehman, 2000; Brockington, 2002; Byaruhanga, 2008; Hoare, 2000; Holmes, 2007; Hrubes, 2001; Neumann, 1998).

As this section has highlighted, the study constructs were treated as continuous or quantitative variables because their scores were aggregated measures of their scale items, first derived with five-point rating scales with equal appearing intervals (Agresti & Finlay, 1999; Nardi, 2006; Pallant, 2007). As indicated by Leedy & Ormrod (2001) using checklists or rating scales simplifies or more easily quantifies people's behaviors or attitudes. The authors further argue that, *"a rating scale is more useful when a behavior, attitude or other phenomenon of interest needs to be evaluated on a continuum of, say, 'inadequate' to 'excellent', 'never' to 'always', or 'strongly disapprove' to 'strongly approve'*, p199". Thus, each of the study constructs or variables consisted of a set of indicators (questions) which were measured on a 5-point rating scale, the scores of which subsequently averaged to make composite measures for the variable scale. The composite scores constituted the variable measures which were then used in the analysis.

Study Design

A single-point-in-time cross-sectional design was found to be the most pertinent and realistic for this study because it allowed the researcher to work within the limited resources, yet generated necessary and plausible data and therefore scientifically credible conclusions (de Vaus, 2006; Bernard, 2000; Rubin & Babbie, 1997). Although a one-point-in-time investigation, measurements were taken on multiple comparison groups in order to establish if variations in independent variables are systematically associated with variation in dependent variables between the groups, and therefore to enhance the reliability and validity of the data generated (Rubin & Babbie, 1997; de Vaus, 2006; Ary et al., 2006).

Reliability and Validity

Miscellaneous procedures and tasks were adopted to enhance the collection of reliable and valid data and therefore both statistical and theoretical generalizations of the study. At the onset was the operationalization of the study variables in the bid to construct instruments that are representative of the variables or domain being measured. This particularly promotes content validity as the validity of data is tied to the validity of instruments (Bernard, 2000; Leedy & Ormrod, 2001). The variables themselves, as shown in previous sections, are adequate representation of the theories underpinning this study hence construct validity is high. Of noteworthy too is that the design of this study, cross-sectional design, is very strong on external validity, mainly due to the use of representative comparison samples which are therefore statistically representative of study populations (Krueger in Freeman, 2006; Rubin & Babbie, 1997). There are a number of instrument design aspects such as question wording and response formats which can affect the quality of data. In this study, short and specific

questions (as opposed to double-barreled ones) and rating scales in the form of 5-point likert type scales or response formats were used to aid internal consistency. As shown below, the instrument design phase also involved pre-testing of instruments using both statistical approaches in order to enhance internal consistency reliability and other aspects (Ary et al., 2006; Field, 2005). Additionally cognitive testing or reviewing of instruments was performed using qualitative procedures. This is imperative because pre-testing (piloting) does not provide evidence of causes, nor of covert problems (Collins, 2003).

The question of ethics is another issue that can seriously affect the aspects of reliability and validity. The researcher and her assistants addressed this by building rapport and having respectful interaction with community members. Consent for participation was obtained from all the respondents who were also informed of the procedures and aims of the study (Sassaroli et al., 2008:471). In addition, the data collection exercise was preceded by training of interviewers and interpreters to equip them with relevant interviewing skills and educate them about how they should conduct themselves in the village. As Bryman (2004:111) maintains training of interviewers promotes intra-interviewer validity and inter-interviewer validity. There was also face-to-face administering of the study instruments in order to allow for clarification of questions to the respondents, probing, and a good response rate (Bernard, 2000; Leedy & Ormrod, 2001). The importance of this cannot be overemphasized as the study was carried out in rural areas where literacy levels are low as well. Moreover, the triangulation approach to data collection and analysis (different comparison groups and respondents: household heads and key informants from the three sampled settlements) was adopted in order to

generate a wide range of evidence hence to increase confidence about the accuracy and reliability of the results (Williamson, 2007). Thus, other than being called for by the need to get to greater depth with the research question, the mixed method approach to this study was adopted in the bid to promote reliable and valid findings and therefore confidence in the conclusions reached.

Data Collection and Instrumentation

The main data collection exercise took place between April and July 2010, involving household questionnaire surveys and key informant interviews. The instruments were originally written in English and later translated in to Setswana, the official native language. A total of six research assistants were hired and trained to administer the household questionnaires while the interviews were solely conducted by the researcher. Before being administered, the household survey instrument was piloted on communities with similar backgrounds to those sampled for the study.

Pilot Survey and Internal Reliability Analysis

To finalize the design of the questionnaire it was pre-tested using statistical approaches in order to check for construct validity or internal consistency reliability and other aspects (Ary et al., 2006). Prior to this, cognitive testing was performed on the instrument using qualitative procedures. These involved repetitively reviewing the questionnaire (themes, indicators, response formats, wording, length, and so on) with different groups of people including my study committee, researchers from the University of Botswana and DWNP officers in Gaborone. The overall aim was to improve the questionnaire content, structure, and comprehension to the respondents. Necessary modifications were made thereafter. As hinted by Collins (2003), cognitive reviewing is imperative because pre-testing (piloting) or statistical approaches do not

provide evidence of causes, nor of covert problems. The pre-test survey was conducted with 31 participants from Lesoma and Kazungula which are both in the study area and are peripheral to the park. The internal reliability analysis was computed separately for all the construct scales (*Livelihood Effects Index, Perceived Control over Park Resources Index, Perceived Access to Park Resources Index, Participation in Park Governance Index, and Conservation Behaviors Index*) using SPSS 16 for Windows. All negatively phrased items were reverse coded before entering the data (Field, 2005; Pallant, 2007).

The main statistics used for examining the internal consistency of the construct scales were Cronbach's alphas and the inter-total correlations. While Cronbach's alpha shows overall internal consistency of a scale, inter-total correlations point to items that can be eliminated due poor correlation with others in the scale. The conventionally acceptable Cronbach's alpha values range from .7 to .8 while the cut-off for inter-total correlations is a value of .3 or more (Field, 2006). However, exceptional or different values, lower or higher than these benchmarks, are contended by some researchers on the grounds that such differences as the nature of the construct in question (e.g. multi-dimensional verses unidimensional variables) or the type of research could affect the results hence such values warrant consideration (Peterson, 1994; Clark & Watson, 1995; Schmitt, 1996). Table 3-3 depicts the overall Cronbach's alphas for the construct scales of the study. Detailed results and statistics for the respective study constructs are shown in Tables 3-4 to 3-8.

As the results (overall Cronbach's alphas) demonstrate all the study construct scales had strong internal consistency. However, the livelihood effects and conservation

behaviors construct scales had a few cases with less than .3 inter-total correlations. Based on the contention that lower than .3 inter-total correlations are acceptable for complex constructs, which livelihoods and conservation behaviors are, this study elected to eliminate step by step only those items with less than .1 inter-total correlations and if by so doing the internal consistency of the scale was improved (Field, 2006; Clark & Watson, 1995; Schmitt, 1996). For example, two items (*recreational benefits and involvement in park management*) were deleted from the scale after the analysis of the initial 26 items of the livelihood effects construct and this improved the reliability coefficient from .803 to .815. As explained above it was found unnecessary to eliminate conservation behaviors items with less than .3 inter-total correlations. For the same reason, two of the participation in park governance scale items (ever served in LACOM and ever participated in LACOM planning and management) that were automatically removed by SPSS because of zero variance were retained in the construct scale. That is, since the study variables are complex constructs and their measures composite scores of several items of the construct scale (Hair, et.al., 1998).

Household Questionnaire Surveys

A semi-structured questionnaire (see Appendix A) was administered with household heads or their representatives to gather factual data and perceptions on the study variables. Both closed and open-ended questions were used. While response formats including specific value, yes-no, checklists and rating scales were employed for the former, textual responses resulted with the latter (Leedy & Ormrod, 2001, 197). The questionnaire covered the following topics: socio-economic factors, livelihood background, involvement in tourism related socio-economic activities, park livelihood benefits, park livelihood costs, participation in park governance, perceived control over park resources,

perceived access to park resources, and participation in conservation of the protected resources. Among the strengths of questionnaires are that they allow the researcher to gather information from a large sample of people relatively quickly and inexpensively (Ary et al., 2006), and have high level of reliability because they enable standardized measurement. On the negative, questionnaires have low content validity, but in the present study this was reduced or offset by operationalization; a process that attempts to ensure that instruments collect what they are purported to measure.

Key Informant Interviews

All manner of information are collected with interviews: facts, people's beliefs about the facts, respondents' own behavior or that of others, attitudes, norms, values, feelings and motives (Bryman, 2004:109; Leedy & Ormrod, 2001:159). With this premise, a semi-structured interview was used to specifically elicit data from the key informants on the following topics: 1) nature (type and magnitude) of the livelihood effects of the park, 2) distribution of the livelihood effects of the park, 3) factors underlying the nature and distribution of livelihood effects and/or people's access to the park resources, 4) park governance and grassroots involvement, 5) practices people undertake towards conservation of the protected resources and influencing factors, and 6) perceived way forward with regard to promoting positive synergies and relationships between conservation and livelihoods. The interviews with the key informants were meant to bring out details and substantiate findings of the household surveys hence both the two data collection instruments addressed the same questions. The interview was standardized and designed with open-ended questions to encourage the key informants to speak freely and have in-depth discussions about the phenomenon under investigation (see Appendix B). Although the key topics of discussion were

predetermined and the interview responses organized question by question the researcher was free to explore, probe, and ask questions that elucidated and illuminated the subject matter (Patton, 2002). The interviews were tape recorded on top to note taking to enable cross-checking and the grasping of details, and subsequently transcribed in entirety for analysis. The comprehensive and richer data the interviews generated made the instrument representative of the content area or domain being measured, therefore signifying high content validity (Leedy & Ormrod, 2001; Lunt and Livingstone, 1996). However, interviews suffer from low external validity because the results they generate are only theoretically generalizable. To enhance theoretical generalizability, it was ensured that the study variables represent the theories underpinning the study. The standardization and replication of the interviews on different key informants drawn from similar organizations from the three comparison settlements was also an attempt by this study to improve the instrument's reliability.

Data Analysis

This study involved description of phenomena, determination of relationships between variables, and assessment of similarities or differences between the comparison groups. This was attained through the deployment of both quantitative and qualitative data analysis techniques. The former technique, in the form of both probability and non-probability statistical analysis, was applied to quantitative data generated from the questionnaire surveys, while the latter was used for the nominal data from the open-ended questions in the questionnaire as well as for the narrative data generated from the semi-structured interviews.

Quantitative (Statistical) Analysis Procedures

Literature notes the inability of cross-sectional designs to establish causality or the direction of relationships, other than just determining correlations, but also that this is normally addressed in the data analysis phase with relevant statistical controls. Thus, "multi-variate procedures markedly enhance the internal validity of cross-sectional studies by enabling much greater control over alternative hypotheses, thereby increasing the plausibility of causal inferences drawn from cross-sectional data" (Rubin & Babbie, 1997:306). To this effect, multivariate analysis techniques were employed in this study to account for problems associated with multiple comparative groups and independent variables like multicollinearity (Ary et al., 2006). Additionally, the techniques used are those that apply to comparisons of independent samples because the comparative groups of this study were selected on the basis of exhibiting pre-existing differences associated with the independent variable (i.e., the study's confounding variables). Lastly, the statistical analysis techniques used were also based on the different response formats or measurement scales of the data generated by the study. The scale of measurement for all the study variables was interval (5-point rating scales) therefore enabling the use of parametric statistics to test the study hypotheses.

Overall, both descriptive and inferential statistics were used to, among other things, show frequencies, distributions, comparisons and relationships (see Table 3-9). Descriptive statistics included frequencies, measures of central tendency and dispersion while a couple of inferential analysis techniques were employed for different functions. For example, ANOVA was used to test for mean differences between the comparison groups while regression models served to determine the significance of predictor variables. Table 3-9 below shows the various analysis techniques that were deployed to test the study

hypotheses. Prior to this, the data was explored and tested for assumptions of parametric statistics and the analysis techniques.

Qualitative Analysis Procedures

Non-statistical techniques were used for the analysis of the textual responses from the household questionnaire surveys and the much more narrative data from the key informant interviews. The analysis was done manually as opposed to the use of computer programs. On the whole, as detailed by Patton (2002) and Wholey et al. (2004), the analysis involved subjecting the data to two sequential phases of coding or analysis; descriptive coding then interpretative coding. The descriptive phase of the analysis is when data is organized in to codes or labels that identify the data (Huberman & Miles, 2002; Patton, 2002). Building on this, the interpretative phase is whereby meanings are extracted from the data, comparisons are made, creative frameworks for interpretation are constructed, conclusions are drawn, significance is determined, and if necessary, theory is developed (Patton, 2002:465). Altogether these processes enable the data to be summarized and classified (organized) in to an index system, and subsequently to be mapped in to themes, patterns and associations emerging from the data. As Bertrand et al. (2007) emphasize, the analysis of narrative data involves synthesizing the many and diverse points of view into meaningful conclusions.

This study adopted Ritchie & Spencer's (1994) framework analysis together with the technique of data displays to aid the application of the foregoing analysis processes. Framework analysis was found to be most relevant because it is better adapted to research, as is the case with the present study, which has specific questions, a limited time frame, a pre-designed sample and a priori issues (Srivastava & Thomson, 2009). Thus, the approach is augmentative and deductive because it starts deductively from

preset aims and objectives, with data more structurally collected and the analytical process tending to be more explicit and more strongly informed by a priori reasoning (Dixon-Woods, 2011; Pope et al., 2000). However, the technique is inductive to some extent because it reflects the original accounts and observations of the people studied. Framework analysis involves a systematic process of five stages: 1) familiarization, 2) identifying a thematic framework, 3) indexing, 4) charting, and 5) mapping and interpretation (Ritchie & Spencer, 1994).

In this study familiarization was achieved through repeated reading of the interview notes and transcripts. The second stage involves identifying the key issues, concepts and themes by which the different pieces of the qualitative data can be examined and referenced. In other words, it is developing some manageable classification or coding scheme of the data (Patton, 2002). In the present study, a set of a priori themes (the research questions - specifically, the interview guide topics) served the purpose, but the researcher kept an open mind to give room for any key issue that could emerge from the data. As Rabiee (2004), Dixon-Woods (2011) and Carroll et al. (2011) explain, although framework analysis uses deductive approach, it also allows themes to develop both from the research questions and from the narratives of the research participants and therefore enables some inductive analysis. Overall, key points, ideas, statements and opinions, quotes and unanticipated findings were identified, and the resultant product of this stage was a detailed index of the data (index headings and subheadings), which labeled the data according to manageable units for subsequent exploration and processing.

The third stage, indexing, entailed identifying pieces of the data (from phrases, through sentences to paragraphs) that corresponded with the key themes and issues identified above (thematic framework or index headings and subheadings) and then annotating these data with relevant codes – that is, numbers and short text descriptors that elaborated the index headings. It should be noted that the unit of analysis for this study was as Williamson's (2007:138); a coherent statement, ranging from a few single words to one or two complete sentences. Charting was achieved by sorting the data in accordance with the key themes and issues identified during the thematic framework development. As Rabiee (2004) demonstrates, this involved moving the indexed pieces of data from their original textual context and re-arranging them in to charts under the newly-developed appropriate thematic content. The function of the last stage of the analysis, mapping and interpretation, is not only to make sense of the individual pieces of the data, but also to be imaginative and analytical enough to see the relationships between them, and the links between the data as a whole (Rabiee, 2004:658). As such, the interview data was in the final analysis processed into themes, patterns, processes, categories, relationships and typologies in respect of the study questions (Ary et al., 2006; Srivastava & Thomson, 2009).

Data displays, in the form of networks, were used together with framework analysis in order to convey the results in a simple and visually stimulating format (Averill, 2002; Williamson & Long, 2005). In line with Miles and Huberman's (1994) description of a data display, Williamson & Long (2005:9) argue that, 'data displays not only permit illumination of the route from analysis to conclusion, they also enable theoretical conclusions and their underlying rationale to be retraced'. Used together with

framework analysis in this study, the data displays (causal networks) create a logical chain of evidence and transparency (Hunter et al., 2002; Williamson & Long, 2005).

Summary

This chapter has outlined the methodological aspects that have facilitated the undertaking of this study. First, the setting is described, which is necessary for the understanding of the phenomena and issues under investigation, and to show both the physical and socio-economic background from which the study population was drawn. Additionally, the study design, a cross-sectional design, and the study approach, a mixed method approach, are outlined. The timeframe and study questions of this research project warranted a cross-sectional design. The research question also called for a mixed method approach in order to generate diverse and richer data. All the procedures relating to sampling and data collection, as well as how the data was treated and finally analyzed have also been discussed. This chapter has also described measures undertaken to ensure that reliable and valid data are collected and analyzed, in the final analysis, enabling credible conclusions to be made.

Table 3-1. Study Settlements, Households and Sampling

Study Settlement	Total Number of HHs	Number of HHs Sampled	Response Rate
Kasane	2171	303	273
Kachikau	240	96	81
Parakarungu	185	74	63
Total	2506	473 (18.87%)	417

Table 3-2. Operationalization of the Study Variables

Study Variables	Variable Description or Indicators	Measurement Scale and Response Format	Number of Items
Livelihood Effects of the Park	The extent to which HHs: a) are involved in tourism related livelihood activities, b) attain park related benefits, or c) experience park related costs	Interval: with rating scores ranging from 1 to 5: *a) not at all involved to very involved, b) not at all so to perfectly so, and c) none at all to huge* (Costs were reverse coded)	24 items (questions 2, 4, 5, 8 and 9 items)
Perceived Control over Park Resources	Perceptions about HH's control over park related resources (wildlife, tourism activities / income, park governing processes and authorities)	Interval: with rating scores ranging from 1 to 5: *absolutely no control to complete control*	8 items (question 14 items)
Perceived Access to Park Resources	Positive and negative belief statements about HH's ability (self-efficacy) to access or make use of park related resources (wildlife, tourism activities / income, park management bodies) to earn a living	Interval: with rating scores ranging from 1 to 5: *definitely false to definitely true* (Negative statements were reverse coded)	8 items (question 15 items)
Participation in Park Governance	The degree to which HHs participate in park governance or management	Interval: with rating scores ranging from 1 to 5: *never to always*	9 items (question 11 items)
Conservation Behaviors	Level of HH a) compliance with conservation rules, b) involvement in or undertaking of positive conservation practices, and c) engagement in negative / illegal conservation practices	Interval: with rating scores ranging from 1 to 5: *a) absolutely no compliance to complete compliance, b) not at all involved to very involved, and c) engage to a large extent to do not engage at all*	15 items (questions 16, 17 and 18 items)

Table 3-3. Internal Reliability Analysis Results for the Study Construct Scales

Scale items	Construct Scale	Cronbach's Alpha Coefficient
Questions 2, 4, 5, 8 and 9 items	Livelihood Effects of the Park	.82
Question 11 items	Participation in Park Governance	.86
Question 14 items	Perceived Control over Park Resources	.84
Question 15 items	Perceived Access to Park Resources	.88
Questions 16, 17 and 18 items	Conservation Behaviors	.79

Table 3-4. Inter-Item Consistency Statistics for the Livelihood Effects of the Park Scale

Item	Mean if Item Deleted	Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
Involvement in Tour Enterprises	48.13	154.72	0.27	0.81
Involvement in Hotel Enterprises	47.48	153.39	0.19	0.82
Involvement in Crafts Enterprises	47.90	154.96	0.21	0.81
Involvement in Tourist Entertainment Activities	47.94	154.46	0.27	0.81
Involvement in Other Tourism Activities	47.32	152.69	0.21	0.82
Park Employment	48.06	152.73	0.32	0.81
Tourism Employment / Income	47.35	143.97	0.45	0.80
Ownership of Tourism Assets / Enterprises	48.23	152.91	0.36	0.81
Increased Env Knowledge / Awareness	47.77	156.45	0.16	0.82
Improved SES	47.84	151.21	0.36	0.81
Game Meat Provisions	47.68	158.09	0.15	0.82
Overall Benefits of Wildlife	48.00	154.07	0.29	0.81
Overall Benefits of Tourism Activities	47.13	149.25	0.29	0.81
Overall Benefits of Park Mgmt Bodies	48.23	159.11	0.16	0.82
Livestock Predation	46.90	135.02	0.64	0.79
Property Damages by Wildlife	47.23	142.65	0.49	0.80
Grazing Competition with Wildlife	47.06	140.06	0.56	0.80
Disease Transmission from Wildlife	47.13	136.52	0.65	0.79
Loss of Resource Access	46.52	142.19	0.46	0.80
Loss of Resource Management Control	46.19	148.30	0.42	0.81
Life Loss/Endangerment	47.45	146.26	0.40	0.81
Overall Costs of Wildlife	46.45	144.66	0.50	0.80
Overall Costs of Tourism Activities	48.19	158.76	0.21	0.81
Overall Costs of Park Mgmt Bodies	48.16	156.74	0.31	0.81

Table 3-5. Inter-Item Consistency Statistics for the Participation in Governance Scale

Item	Mean if Item Deleted	Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
Ever Served in CBNRM Trust Body	9.35	13.64	0.31	0.88
Ever Served in DWNP	9.55	12.26	0.66	0.84
Participation in Community Wildlife Management Decisions	9.42	11.52	0.82	0.82
Participation in Problem Animal Decision Making	9.58	13.99	0.66	0.85
Participation in Compensation Decision Making	9.58	13.99	0.66	0.85
Participation in Anti-Poaching Decision Making	9.52	12.73	0.83	0.83
Participation in Wildfire Control Decision Making	9.48	12.86	0.67	0.84
Participation in DWNP Planning and Management	9.55	12.26	0.66	0.84
Participation in CBNRM Trust Planning and Management	9.39	13.18	0.41	0.87

The items; Ever Served in LACOM and Participation in LACOM Planning and Management do not show in the table because they were automatically removed from the analysis by SPSS since they had zero variance. However, they were retained in the scale as explained above.

Table 3-6. Inter-Item Consistency Statistics for the Perceived Control over Park Resources Scale

Item	Mean if Item Deleted	Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
Control over Wildlife	9.74	8.53	0.66	0.81
Control over Tourism Activities / Income	9.55	6.92	0.53	0.84
Control over LACOM Planning and Mgmt	9.77	8.78	0.60	0.82
Control over DWNP Planning and Mgmt	9.48	7.93	0.82	0.79
Control over CBO Trust Planning and Mgmt	9.26	8.47	0.41	0.84
Control over LACOM Members	9.74	8.67	0.61	0.82
Control over DWNP Officials	9.48	7.93	0.82	0.79
Control over CBO Trust Board Members	9.29	8.55	0.44	0.83

Table 3-7. Inter-Item Consistency Statistics for the Perceived Access to Park Resources Scale

Item	Mean if Item Deleted	Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
HH has ability to make use of wildlife to earn a living	17.42	25.39	0.70	0.87
HH has ability to engage in tourism activities…	16.52	21.99	0.77	0.86
HH has ability to access support from park bodies…	16.87	24.12	0.78	0.86
HH can easily engage in tourism activities…	16.48	21.86	0.76	0.86
HH can easily access support from park bodies…	16.81	23.56	0.79	0.86
HH lacks money to access park related resources…	16.68	26.09	0.56	0.88
HH lacks skills/knowledge to access park resources…	16.65	25.04	0.59	0.88
Lack of affiliation disables HH access to park resources…	16.26	28.87	0.28	0.90

Table 3-8. Inter-Item Consistency Statistics for the Conservation Behaviors Scale

Item	Mean if Item Deleted	Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
Compliance with rules prohibiting poaching	34.23	32.91	0.30	0.79
Compliance with rules prohibiting illegal collection of VP…	34.61	32.98	0.14	0.80
Compliance with rules prohibiting grazing in the park	34.39	33.25	0.23	0.79
Compliance with park entrance rules	34.26	31.33	0.59	0.77
Compliance with wild fire control rules	34.26	31.33	0.59	0.77
Participation in policing of illegal practices	36.61	32.98	0.13	0.80
Participation in PAC harmless / protection activities	36.94	29.00	0.47	0.78
Participation in environmental awareness building	36.84	30.54	0.42	0.78
Participation in wild fire control activities	36.90	33.62	0.12	0.80
Collection of veld products, etc. without permission	37.19	29.50	0.39	0.78
Grazing of livestock in the park without permission	37.55	28.79	0.54	0.77
Entrance to the park without permission	37.74	30.00	0.55	0.77
Burning of the veld without permission	37.74	30.00	0.55	0.77
Hunting of wildlife without permission	37.74	30.00	0.55	0.77
Undertaking PAC harmful activities (animal brutality)	37.19	25.90	0.60	0.76

NB: PAC refers to problem animal control and VP is veld products

Table 3-9. Statistical Analysis Techniques

Objective / Hypothesis	Analysis / Hypothesis Testing Technique
Data exploration and preliminary analysis	Factor analysis and tests of assumptions
Socio-economic background descriptives	Frequencies and Measures of Central Tendency and Dispersion
Variable descriptives	Measures of Central Tendency and Dispersion
There is no significant variation in the nature and distribution of the livelihood effects of the park between the study communities	ANOVA to test for mean differences between the study communities
Livelihood effects are not a function of perceived control over park resources, perceived access to park resources, and participation in park governance	Standard Multiple Regression to test for predictive validity of the independent variables in explaining variance in the outcome variable Pearson Coefficient to test for relationship between the variables
People in the three study communities do not possess differing conservation behaviors	ANOVA to test for mean differences between the comparison groups
Livelihood effects do not impact conservation behaviors	Simple linear Regression to test for predictive validity of the independent variable in explaining variance in the outcome variable Pearson Coefficient to test for relationship between the variables

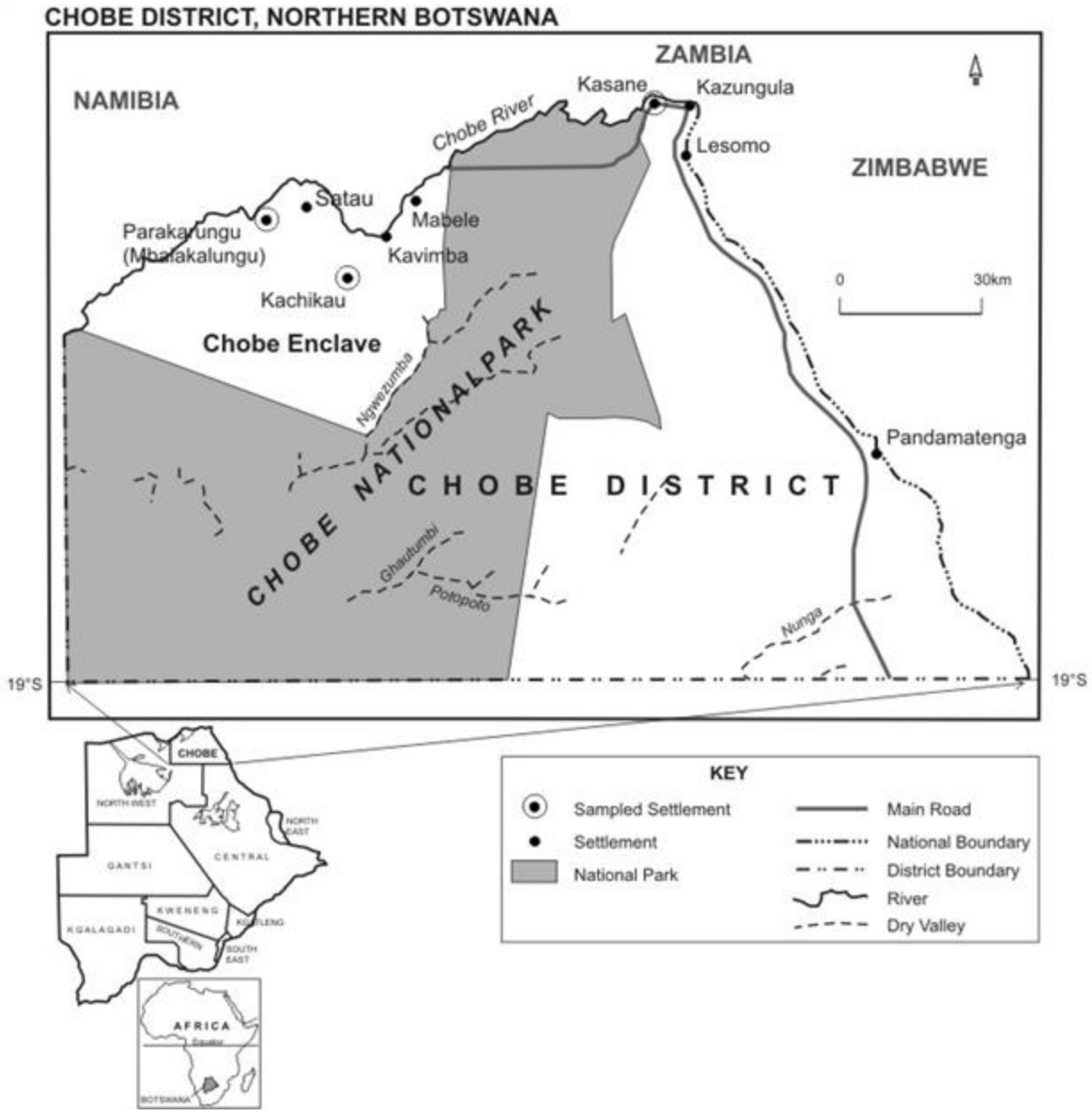

Figure 3-1. Map of the study area

CHAPTER 4
RESULTS

This chapter presents the results of the study. The purpose of the study was to determine whether Chobe National Park has favorable and equitably distributed livelihood effects, and if the livelihood effects in turn lead people to conserve the protected resources. Data to address this objective was obtained through household questionnaire surveys and key informant interviews and analyzed with the aid of both quantitative and qualitative analysis techniques.

The results are presented in four sections. First is a synopsis of the socio-demographic characteristics and livelihood backgrounds of the sampled population. These data are important for indicating the socio-economic profiles of the study population but also for showing the basis of people's household economies; especially the role of Chobe National Park and/or tourism related uses. Next are descriptive statistics of the study variables. Third, the results are presented according to the hypotheses of the study to determine if there are differences in both livelihood effects of the park and conservation behaviors between the three settlements in the study, and to understand factors influencing the livelihood effects and the impact on conservation behaviors. This section begins with an overview on data exploration and preliminary analysis. Finally the results of the key informant interviews are presented.

Socio-Demographic Profiles and Livelihood Backgrounds of the Study Population

A total of 417 household questionnaires were analyzed; 273 (66%) from Kasane, 81 (19%) from Kachikau and 63 (15%) from Parakarungu. Table 4-1 summarizes the basic socio-economic characteristics of the study population (n=417). Over half (58%) of the households are male-headed and most (46.3%) of the household heads are in the

31-50 years age bracket. The predominant education level of the household heads is secondary (33.1%) followed by vocational/technical or college/university training (29.3%) and then the primary level (24.5%). Over 80% of the household heads have an occupation; the majority (54.2%) being in the category of professionals and/or skilled workers while the traditionally popular peasant farmer occupation (11.5%) takes a back seat. Subia is the dominant ethnicity followed by the category of others which defines a multiple of ethnicities sparsely represented in the area. While the majority of the residents have resided in the respective study settlements for many years; most since birth (42%) and others from 11 to 40 years (25.9%), a significant number (31.4%) had recently moved to the area. A large proportion of the residents originate from within the broader study area (Chobe District), either from the respective study settlements (40.3%) or from other settlements in the district (28.5), but a quarter (27.6%) are immigrants from elsewhere in Botswana while a small percentage originate from foreign nations. People, excluding those who have not moved, are drawn to the study settlements mainly by economic factors, especially employment opportunities and to a very small extent, land.

An average household comprises of 7.95 persons and two thirds of the households have average monthly incomes in the range of P1501 to over P3000[1] (~$429). However, over a third of the people (36%) are 'middle class' and earn (more than P3000 per month. A fixed salary (formal employment) is the main source of household cash income in all the three settlements, though is highest in Kasane (Table 4-2). The runner-up main sources of income are small businesses in Kasane (7.7%),

[1] Botswana Pula: BWP (US$1.00~BWP 7.00)

casual wage employment in Kachikau (24.7%), and farming/fishing/harvesting in Parakarungu (28.6%) with cash income from sale of crops, livestock, fish or veld products.

Two distinct groups of livelihood activities are prevalent in the study area; park/tourism related activities on one hand, and non-park/tourism related activities on the other (Table 4-3). Results show variation in the importance of the activities to household livelihood. Park/tourism related activities are of less importance to the majority of the households, with 85% reporting the activities to be not at all important (VU) and not important (U). Most of the households alleging the activities to be sometimes important (V), important (I) or very important (VI) are in Kasane. More (36%) households indicate the non-park/tourism activities to be sometimes important (V), important (I) or very important (VI) as opposed to a total of 17% reported for park/tourism related activities.

Descriptive Statistics of the Study Variables

Livelihood Effects of the Park (LEs)

Mean scores were derived for the livelihood effects of the park (LEs) as well as for the three dimensions of the variable to determine how favorable the effects are (Table 4-4). Based on the favorability scale of 1 to 5 (very unfavorable to very favorable), the mean score coding was adopted as follows: 1.00 to 1.49 for ‘Very Unfavorable’, 1.50 to 2.49 for ‘Unfavorable’, 2.50 to 3.49 for ‘Varies/Neither/Sometimes’, 3.50 to 4.49 for ‘Favorable’, and 4.50 to 5.00 for ‘Very Favorable’. For the study area as a whole the LEs favorability mean was 2.68 (SD = .45, n = 417), indicating that on average the livelihood effects of the park vary (that is, they are sometimes favorable, sometimes not or neither). Regarding favorability in relation to the type of LEs, the positive LEs

(involvement in tourism related activities and attainment of park related benefits) came out unfavorable (means of 1.77 and 2.05 respectively) as opposed to the negative LEs (experience of park related costs) which emerged favorable (M = 3.71). Thus, while there is limited attainment of positive LEs (as indicated by the favorability means of 1.77 and 2.05) in the study area the situation is stabilized or compensated for by the smaller occurrence of park costs (as symbolized by a favorability mean of 3.71) hence the mean score of 2.68 for the overall LEs, indicating that the LEs are mixed. However, as Table 4-4 further depicts there tends to be slight variations between the settlements in terms of magnitude and type of LEs experienced. For instance, the park costs are more favorable in Kasane and Kachikau than in Parakarungu.

Corresponding with the foregoing, the residents (n = 414) responded to the open-ended question, “Overall would you say the park is beneficial to your household livelihood” as follows: not at all beneficial (38.1%), not beneficial (9.1%), varies/neither (18.7%), beneficial (10.1%) and very beneficial (23.3%). On probing the respondents advanced the following as reasons for defining the park as beneficial[2] to their household livelihood: employment (27.8 %), tourism business (4.3 %), market for or sale of local products (6 %), wildlife consumptive use benefits (8.9%), CBNRM Trust related benefits (3.1%), non-economic or intangible benefits (5.5%), and miscellaneous factors – that is, several of the above benefits (1.7%). When asked, on the flip side, if they would instead say the park is detrimental to their household livelihood, 37.6 % of the respondents labeled it as not detrimental[3], 20.4 % alleged that it varies (meaning, it is sometimes

[2] Beneficial (A combination of Beneficial and Very Beneficial responses)

[3] Not Detrimental (Responses of Not At All Detrimental = 32.1% and Not Detrimental = 5.5% combined)

detrimental, sometimes not or neither), while 42.0% expressed that it is detrimental[4]. Probing revealed wildlife related problems (55.6 % respondents) as the major factor rendering the park detrimental to people's livelihood while resource access deprivation, movement restrictions, and miscellaneous factors (several of the above costs) were alleged to have a very small contribution; respectively 5.0 %, 1.7 % and 1.9%. The remainder (37.6%) constituted those who cited the park as not detrimental (i.e., the category of not applicable). Overall, we can conclude that the livelihood effects of the park are generally mixed or varied: sometimes positive sometimes negative or neither, and both of the two types occurring rarely to occasional or at very low levels hence on the favorability scale the benefits are unfavorable while the costs are favorable.

Conservation Behaviors (CBs)

Conservation behaviors are generally positive in the study area as denoted by a mean of 4.06 (Table 4-5). In spite of this, as shown by the lower mean scores for the three settlements independently and the study area as a whole, there is very minimal practice of behaviors promoting conservation such as policing of practices counteracting conservation, and partaking in PAC[5] protective activities, environmental awareness building and wildfire control measures/endeavors. Respondents were further asked an open-ended question intended to identify factors motivating the undertaking of negative conservation behaviors, that is, those counteracting conservation such as illegal collection of veld products, unauthorized hunting/fishing and illegal burning of the veld. Protection of life and assets (21.6%) emerged as the major motive followed, to a very

[4] Detrimental (Responses of Detrimental =23.3% and Very Detrimental =18.7% combined)

[5] PAC (Problem Animal Control)

less extent, by shortage\lack of livelihood resources (2.9%) and miscellaneous factors (5.5%). The rest (69.8%) constituted those who claimed not to engage in negative conservation behaviors.

Participation in Park Governance (PPG)

The mean level of participation in park governance was 1.11 (Table 4-6) for the study area, where levels of participation were signified by the mean score coding; 1.00 to 1.49 for 'Never', 1.50 to 2.49 for 'Rarely', 2.50 to 3.49 for 'Sometimes', 3.50 to 4.49 for 'Often', and 4.50 to 5.00 for 'Always'. The results imply that on average there is no participation, a scenario prevalent in the three settlements alike. Additionally, asked to indicate how satisfied they were with the level of involvement of the locals in park management/governance, most respondents (49.9%) expressed dissatisfaction[6] as opposed to 30.0% who claimed to be satisfied[7] and 19.9% who alleged that it is sometimes satisfactory, sometimes not or neither. Varied opinions surfaced from a follow-up open-ended question geared at understanding the motives for the displayed levels of satisfaction and, in general, views about park management in relation to grassroots involvement. Through descriptive and analytical coding the opinions were grouped in to five major categories of perceptions (see Table 4-7). As the results show, the predominant form of involvement is consultation to merely disseminate information, gather opinions and address wildlife issues, followed by no consultation and unjust management.

[6] Dissatisfaction (Very Unsatisfactory and Slightly Unsatisfactory responses combined)

[7] Satisfied (Very Satisfactory and Slightly Satisfactory responses combined)

Perceived Control over Park Resources (PC)

As shown in Table 4-8, on average people in the study area perceive their control over park resources as extremely weak (M = 1.43, SD = .41, n = 417). This is based on the mean score coding: 1.00 to 1.49 for “Absolutely No Control”, 1.50 to 2.49 for “No Control”, 2.50 to 3.49 for “Varies”, 3.50 to 4.49 for “Control”, and 4.50 to 5.00 for “Complete Control”. There are slight differences between the settlements though, with Kasane being relatively better off.

Perceived Access to Park Resources (PA)

On the basis of a 5-point likert-type scale from 1 to 5 representing a ‘No Access At All’ to ‘Complete Access’ continuum, respondents believe they have some (M = 2.51) access to park resources (Table 4-9). Also, more so in Kasane than the other two settlements.

Hypotheses Testing

The testing of the hypotheses of the study was preceded by preliminary analysis in order to explore the data and check if it fitted the analysis procedures earmarked for the study. This task was achieved through the performance of factor analysis and checking if the data satisfied the assumptions of the statistical tests.

Factor Analysis

The initial checks involved conducting a series of factor analyses on all the study construct scales (Livelihood Effects Index, Perceived Control over Park Resources Index, Perceived Access to Park Resources Index, Participation in Park Governance Index, and Conservation Behaviors Index). The main purpose of factor analysis is to delineate which sets of variables (scale items) go together or carry the same theme and identify those that cause multicollinearity or have zero correlations. It was therefore

used to: a) discover or validate the underlying structure to sets of the study variables, and b) if necessary, reduce the large sets of variables while retaining as much of the information as possible (de Vaus, 2006; Field, 2006).

All the construct scales showed sampling adequacy and factorability as indicated by measures of KMO and Barlett's Test of Sphericity in Table 4-10 (Field, 2006; Pallant, 2007). The correlation matrices and their determinants were assessed to look for intercorrelation between the variables, in particular to screen the data for variables that do not correlate with any other variables (R = 0) or that correlate very highly with other variables (R > .9 i.e., multicollinearity) (Field, 2006). The results were satisfactory for all the scales (meaning that their variables were measuring the same thing) except for those of the livelihood effects scale. As depicted by the determinant of 7.02E-06, which is far much less than the cut-off of .00001, the scale's correlation matrix showed several pairs of variables with weak and close to zero correlations, therefore implying that some of the pairing variables add negligible value to the construct. While this may justify their omission from the scale it would compromise the essence or substance of the construct. On this basis, it became reasonable to continue with aggregated scores of all the scale variables. Although all the other scales were satisfactory regarding the determinants of the R-matrix, a few cases of multicollinearity were observed with the perceived control over park resources scale, clearly showing redundancy of the pairing variables hence justifying their omission. That is, the correlation coefficients between: a) control over LACOM planning/management and control over LACOM members, b) control over DWNP planning/management and control over DWNP officials, and c) control over CBO planning/management and control over CBO members were respectively .931, .941 and

.940. However, it was also found unnecessary to omit one of the pairing variables since the study is using composite scores of the scale variables/items.

Appendix Tables C-1 to C-5 show data on common variances, variable loadings and underlying structures or factors as identified by factor analysis for the different constructs of the study. As the data indicates, each of the scales is made up of two or more themes or factors. Also, for all the scales, all of the variables had good loadings under at least one factor and most of the factors themselves had necessary numbers of variables, that is, three or more (Field, 2006; Pallant, 2007). Since the motive was not to adopt the factors as identified by the factor analyses and also because factors had satisfactory reliability scores, the study elected to proceed with summated scales of the measures with calculated mean scores (Hair, et al., 1998).

Testing of the Assumptions of the Data Analysis Techniques

Preliminary analyses also included checking if the data satisfied the assumptions of the statistical tests the study was designed for. Although most of the assumptions specific to these techniques (ANOVA and regression models) were tested during the application of the procedures, the basic prerequisites for applying parametric tests were checked beforehand. These included assumptions of interval data, independence of observations, normality of distributions and, where possible, homogeneity of variance. As reiterated in literature (e.g. Field, 2006; Pallant, 2007), the accuracy of parametric tests is dependent on satisfying these assumptions which in turn enables the techniques to have more power than their non-parametric equivalents. For instance, if the assumptions are met, ANOVA will be good at correctly identifying whether in fact there is a difference between comparison groups than Kruskal-Wallace. This is not to

overlook other factors that can influence the power of the test like sample size and effect size.

The assumption of interval data was met because all the study variable measures were derived from calculating and treating as interval data the composite scores of multiple-item indicators (scale items/questions) initially measured on a five-point ordinal response format. Similarly, the study data automatically validated the assumption of independence of observations since they were collected from different and randomly sampled households, therefore independent entities. Additionally, there were individual checks of normality on all the study variables, followed by testing all of the assumptions specific to the analysis technique applied. These results are discussed below for the respective analysis procedures.

Testing the assumptions of ANOVA. Measures of livelihood effects of the park and conservation behaviors, both grouped by location (i.e., the three study settlements; Kasane, Kachikau and Parakarungu), were tested for normality and equal variances prior to performing ANOVA. Normality was tested using graphical tools and Kolmogorov-Smirnova (K-S) test while the Levene's test was used to check for homogeneity of variances. K-S test results for the raw scores of livelihood effects displayed insignificant p-values for Kachikau (.63) and Parakarungu (.22) implying that the data were normally distributed whereas that of Kasane was significant (p=.012) therefore suggesting non-normality. Levene's test for this data was significant (p-values less than .05) indicating unequal variances between the three settlements. While log transformation had normalized the livelihood effects measures for Kasane (p=.57) and retained normality for both Kachikau (p=.30) and Parakarungu (p=.08), though slightly

reduced, it was unable to equalize the variances of the three groups (p-values still less than .05). The Levene's test performed as part of ANOVA on the log transformed data further confirmed the heterogeneity of variance. To combat this problem, the Welch version of F-ratio was adopted instead of the F-ratio in the main ANOVA table, and the Games-Howell procedure; a post-hoc test reliable when homogeneity of variance is violated was also used (Field, 2006).

The assessment of raw measures of conservation behaviors revealed equal variances between the three settlements as shown by insignificant Levene's test statistics (p-values more than .05). However, only Parakarungu was normally distributed (with an insignificant p-value of .13) while both Kasane and Kachikau had significant p-values, implying non-normality. Different transformations of this data did not yield any significant improvement in normality of Kasane and Kachikau measures. As a result, the original measures of conservation behaviors were considered appropriate for ANOVA because they had demonstrated homogeneity of variance in addition to the fact that the skewness of the two groups not normally distributed were both close to zero (Kasane = -.01 and Kachikau = -.73). Skewness around zero implies significant degree of normality (Tabachnick & Fidell, 2001). Moreover, as Pallant (2007) and Field (2006) note, ANOVA is 'robust' to violations of the normality assumption, especially with large enough data (30+) which is the case (n=417) in the current study.

Testing the assumptions of multiple regression. The regression analysis was preceded by performance of individual tests of normality on scores of the variables involved in the model; in all, three independent variables (participation in park governance, perceived control over park resources and perceived access to park

resources) predicting the dependent variable (livelihood effects of the park). The results from the analysis of the raw scores were all significant implying non-normality as also shown by varying degrees of skewness (respectively 3.95, 1.33, 0.31 and 0.53 for participation in park governance, perceived control, perceived access, and livelihood effects measures). Log transformation normalized the livelihood effects data [D(417) = .02, p = .60] and slightly reduced the skewness for participation in park governance (3.11) and perceived control measures (0.59), while inflating and changing the skewness of the perceived access distribution to negative (- 0.7). Since data transformation did not normalize the predictors, the procedure was applied on raw scores except for the dependent variable (livelihood effects) which was log transformed. This was found to be a reasonable option given that the sample for the study was large enough (n=417) to reinforce the power and accuracy of the procedure and offset the limitation of non-normality (Field, 2006; Pallant, 2007). The assumptions checked as part of multiple regression analysis included tests of 1) multicollinearity between the predictors, 2) multivariate normality of errors, 3) linearity of residuals, 4) homoscedasticity of residuals, and 5) independence of errors. Multicollinearity was checked using the correlation matrix and collinearity statistics (tolerance: TOL and Variation Inflation Factors: VIF values). All the bivariate correlations between the three predictors (participation in park governance, perceived control over park resources and perceived access to park resources) had coefficients less than .7 (.622, .297, and .566) indicating that the data had no problem of multicollinearity. Confirming this, as shown in Table 4-11, the TOL values were all above the conventional value of .10 and the VIF values below the cut-off of 10 (Pallant, 2007).

Normality of errors was examined through visual assessment of the normal probability plot and the histogram of the standardized residuals. Both graphs showed the data to be normally distributed, as depicted by points lying close to the diagonal line in the normal probability plot and a histogram with a fairly normal distribution. The scatterplot of the standardized residuals was used to determine whether the assumptions of linearity and homoscedasticity were met. It displayed a distribution that was roughly rectangular with most scores concentrated in the center, thereby suggesting that the assumptions of linearity and homoscedasticity were tenable. The assumption of independence of errors was tested using the Durbin-Watson statistic, the result of which was 1.831. According to Field (2006), a Durbin-Watson statistic of a value approximating 2 means that the errors are uncorrelated, as such satisfies the assumption of independence of errors. The data was also checked for the presence and effect of outliers by inspecting a few other outputs of the regression analysis. Several cases were shown to have Mahalanobis distances greater than the critical (16.27), therefore concerning. The cases were checked for data errors and it turned out that they represented the reality on ground, that is, they were the few households with high scores of participation in park governance. As such, they were retained. Besides, the maximum Cook distance statistic was less than one (.141), suggesting no undue influence of the outliers on the results of our regression model (Tabachnick & Fidell, 2007, p75). Further, all the cases shown in the casewise diagnostics table had values ranging from -2.794 to 2.372, therefore within acceptable limits (i.e., their standardized residual values were not above 3.0 or below -3.0 thresholds).

Testing the assumptions of simple linear regression. The assessment of the impact of livelihood effects of the park on conservation behaviors using simple linear regression included an analysis of the residuals to detect if the assumptions of linearity, homoscedasticity, independence and normality were met. Prior to this there was individual testing of normality on the two variable measures. As demonstrated earlier, measures of the livelihood effects of the park were normalized by log transformation. Conversely, the raw measures of conservation behaviors though with a K-S statistic that was significant (p-value = .00), turned out not to have serious deviations from normality with skewness that was close to zero [D(417) = -.099, p = 0], whereas the log transformed data was more non-normal, [D(417) = -.75, p = .00]. For this reason, the raw measures of conservation behaviors were used in the analysis instead. Linearity was assumed because points in the scatterplot of the standardized residuals were to a large degree symmetrically distributed around the horizontal line. The data also seemed to approach homoscedasticity as the points were generally concentrated in the center with just a negligible number being spread out. The Dublin-Watson test resulted with a value of 2.041 therefore satisfying the assumption of independence of errors while the normal probability plot showed the residuals to be somewhat normally distributed as displayed by the points generally having an almost symmetrical pattern with just minor deviations from the diagonal line. An assessment of the casewise diagnostics table showed three cases that had standardized residual values below -3.0. However, the maximum Cook Distance statistic was less than one (.142), suggesting no serious influence of the outliers on the results of the model, while the maximum Mahalanobis

distance (9.52) was less than the critical value (10.82), proving the outliers to be less of a concern.

Comparison of Study Settlements for Variations in Livelihood Effects of the Park

Hypothesis 1: There is no significant variation in the nature and distribution of the livelihood effects of the park between the three study settlements. A one-way between groups ANOVA with post-hoc analysis (Games-Howell test) was used to assess if there was significant difference in livelihood effects of the park (log transformed) across the three study settlements. The motive was to determine if location (as an independent variable at three levels; the 3 study settlements) significantly influenced the livelihood effects. The purpose of the post-hoc analysis was to establish where exactly among the three settlements did the inter-group differences lie. The use of Games-Howell post-hoc test was necessitated by the fact that the comparisons groups not only had unequal sizes but also heterogeneity of the variances (Field, 2006).

As with the F-ratio in the main ANOVA table ($F (2, 414) = 9.18$, $p = .00$), the Welch version was significant ($F (2, 155.83) = 11.97$, $p = .00$), revealing a significant difference in livelihood effects of the park between the three settlements. Accordingly, the hypothesis of equal means can be rejected. Despite reaching statistical significance, the actual difference in the group means (.43, .40 and .41), derived from log transformed scores, seemed quite small. The effect size, calculated using eta squared (η^2) (Pallant, 2007) was .042; somewhere between small and medium levels by Cohen's (1988) classification. Thus, the group variability explained just 4.2% of the variability in livelihood effects of the park. Games-Howell post-hoc comparisons indicated significant differences in livelihood effects of the park between Kasane (M = .43, SD = .08) and

Kachikau (M = .40, SD = .05) on one hand, and Kasane (M = .43, SD = .08) and Parakarungu (M = .41, SD = .06) on the other, but not between Kachikau (M = .40, SD = .05) and Parakarungu (M = .41, SD = .06). Overall, the results confirm the study hypothesis that there is significant variation in the nature and distribution of the livelihood effects of the park between the three study settlements.

Correlational Analysis to Determine Variables Predicting Livelihood Effects of the Park

Hypothesis 2: Livelihood effects are not a function of perceived control over park resources, perceived access to park resources, and participation in park governance. A standard multiple regression was employed to test the ability of a set of three independent variables (participation in park governance, perceived control over park resources and perceived access to park resources) to predict the dependent variable (livelihood effects of the park). This type of regression analysis is whereby all the independent variables are entered into the equation simultaneously. Not only do the results indicate the amount of variance in the dependent variable accounted for by all the predictors as a group but also the unique contribution made by each predictor. As detailed above, the data had satisfied all the assumptions of multiple regression analysis therefore fit for the procedure. Only measures of the dependent variable, livelihood effects of the park, were log transformed prior to conducting the analysis since the various attempts of transformation did not normalize other variables involved in the model.

Bivariate correlations of the variables involved in the model are presented in Table 4-12 together with the means and standard deviations. The results show modest to good positive relationships between the respective predictors and the dependent

variable. The positive relationships suggest that as one variable improves the other improves too. That is, the higher the participation in park governance, the higher the perceived control and the higher the perceived access, the more favorable are the livelihood effects of the park. Although the associations between the dependent variable and participation in park governance, on one hand, and perceived control over park resources on the other, are respectably weak and moderate, the overall results support literature (e.g., Byaruhanga, 2008; Chandool, 2007; Lepp, 2004) linking the socio-economic effects of protected areas to, among others, the predictors used in the model.

Also noteworthy, is that the correlations between the predictors were all below .7, implying that the data was free of multicollinearity. The fairly strong correlation (.622) between participation in park governance and perceived control over park resources is comprehensible given that the two variables refer to more or less the same issue; the main difference being that the former relates to actual involvement in management control of park resources while the latter deals with what is perceived about the phenomenon. Similarly, it is quite logical for people with higher perceived control to have higher perceived access too in view of the fact that contemporary resource management/governance is more often than not dominated by people with self-efficacy qualities (skill, experience, education, information, money, effort or higher social standing). Thus, possibly, actual involvement in resource governance instills perceptions of control over park resources, while the self-efficacy beliefs translate in to perceived access to park resources.

A statistically significant regression equation resulted [$F (3, 413) = 88.50$, $p = .00$], showing that the regression model was, in contrast to the use of the mean value, a

better predictor of the dependent variable. The model as a whole, that is, the three predictors combined explained 39% of the variance in livelihood effects of the park. Also, all of the three predictors made statistically significant unique contributions to the prediction of livelihood effects (see Table 4-13). Perceived access to park resources alone made the strongest unique contribution (β = .53, p = 00) while on their own perceived control over park resources and participation in park governance explained much less, respectively (β = .20, p = 00) and (β = -.12, p = 02). Overall, as summarized in the first part Figure 4-1, a path model based on the theories of empowerment and social exchange, the model shows that the three predictors; participation in park governance, perceived control over park resources and perceived access to park resources are good predictors the livelihood effects of the park. These results therefore support the alternative hypothesis that livelihood effects of the park are a function of perceived control over park resources, perceived access to park resources, and participation in park governance.

Comparison of Study Settlements for Variations in Conservation Behaviors

Hypothesis 3: People in the three study communities do not possess differing conservation behaviors. Examining whether location has a significant impact on conservation behaviors was achieved with a one-way between-groups ANOVA, and a Hochberg's GT2 post-hoc analysis to establish where the differences occurred among the settlements. The Hochberg's GT2 test fitted the data because it applies when there are unequal group sizes yet when the assumption of homogeneity of variances is met (Field, 2006). The results were non-significant (F (2, 414) = .83, p = .44), indicating that there is no difference in conservation behaviors between the three settlements hence the hypothesis of equal means cannot be rejected. This conclusion is supported by the

negligible differences in the actual mean scores, which respectively were 4.07, 4.02 and 4.05 for Kasane, Kachikau and Parakarungu. A very negligible effect size; $\eta^2 = 0.004$ resulted too. This shows that only 0.4% of variability in conservation behaviors is explained by the group difference. Thus, the impact of location on conservation behaviors is as good as non-existence, in other words, there is no treatment effect.

Correlational Analysis to Examine the Impact of Livelihood Effects of the Park on Conservation Behaviors

Hypothesis 4: Livelihood effects do not impact conservation behaviors. The impact of the livelihood effects of the park on conservation behaviors was explored with a simple linear regression. Quite a modest positive relationship (r=.29) resulted, revealing that conservation behaviors increase gradually with increasing livelihood effects. That is, as livelihood effects become more favorable, conservation behaviors become more positive. The relationship was statistically significant as denoted by the regression equation, $F (1, 415) = 39.08$, $p = .00$, hence we can conclude that the regression model results in significantly better prediction of conservation behaviors than if the mean value was used. Additionally, the model (i.e., by itself the only predictor variable, livelihood effects of the park) accounted for 8.4% (R^2 Adjusted = .084) of the variance in conservation behaviors. With model parameters ($B = 1.30$, $SE = .21$, $\beta = .29$) that are significant ($t = 6.251$, $p = .00$), the livelihood effects of the park was therefore a good predictor of conservation behaviors. On average, an increase of .29 ($\beta = .29$) standard deviations of conservation behaviors is expected for every one standard deviation increase in livelihood effects. Accordingly, the hypothesis of no effect can be rejected.

Results of the Key Informant Interviews

Twelve key informant interviews were analyzed; 5 from Kasane, 3 from Kachikau and 4 from Parakarungu. Table 4-14 shows the profile of the informants. All names used are pseudonyms. As detailed in Chapter 3, framework analysis was used in combination with networks to analyze the interview data, that is, to organize the data and subsequently map and synthesize the themes, patterns, processes, categories, relationships and typologies emerging in respect of the research questions. The results are summarized in Table 4-15 and discussed below according to the five key themes of the analysis. The issues extracted from the analysis of the data are also depicted visually in Figures 4-2 and 4-3.

Nature of the Livelihood Effects of the Park (LEs)

All the key informants pointed to two broad types of the livelihood effects of the park; positive effects (park benefits) and negative effects (park costs). Several sub-categories within each of the two broad groups were also revealed.

Positive effects: Five sub-categories of the positive effects were extracted as shown in Table 4-15 and Figure 4-2. The sub-category of direct economic or tangible benefits was shown to be mainly in the form of park/tourism related employment (formal and informal), fishing and game meat provision, and ownership of tourism enterprises such as hotel and hospitality, tour services and curios and crafts. The employment benefit was described as significant, particularly the unskilled labor and casual waged jobs. On the other hand, tourism enterprises were shown to be booming except for two: crafts and curio activities which were described as promising, and the traditional entertainment industry said to be coming up slowly. The group of benefits categorized as non-economic or intangible covered attainment of environmental education or

consciousness and leisure or recreational atmosphere availed by the scenic environs and tourism facilities. Effects highlighted as CBNRM benefits included: community development benefits, short-term employment from safari hunters (trackers, cooks and guides) and community projects, and occasional game meat supplies. Further, most of the informants reported the district to have experienced significant growth in tourism which some commended as rural development. Likewise, the park was praised by all the informants for heightened biodiversity conservation. Regarding magnitude of the overall positive effects, it was commonly uttered that while there is high level of biodiversity conservation and tourism development, the direct economic or tangible benefits are very limited except for the provision of unskilled labor employment and casual waged jobs and CBNRM related benefits, which most of the informants acclaimed as being fairly significant, respectively in Kasane and the enclave.

Negative effects: The analysis also identified four sub-categories of the park costs (Table 4-15 and Figure 4-2). Described as having a heavy toll on people's livelihoods by all the key informants were miscellaneous wildlife related impacts, including predation, property damages, life endangerment, disease transmissions, and resource use competition. Movement restriction within settlements as well as between Kasane and the enclave communities, notably the latter, also emerged as a big detrimental effect. The key informants found the barring of transit through the park at night very inconsiderate because, as they further elaborated, it is applied irrespective of the reason for travelling or the circumstances. Furthermore, some informants raised the issue of resource access curtailment (wildlife and park land) as a serious deprivation hence compromising people's livelihoods. Thembiza from Parakarungu expressed:

> ‘It’s troubling you know…okay, we understand the value of the park… but all our land is taken by wildlife and tourism, people are denied residential plots and crop fields in the name of the park, hunting has been banned, too many restrictions on fishing and thatching grass… it’s really painful because our Namibian counterparts can fish all they want from the same river we are restrained from using ’.

Together with the above-cited costs, some informants from Kachikau raised concerns about the effects, mainly dust, of the tourist transit traffic.

Distribution of the LEs and/or People’s Access to Park Resources or Benefits

According to the key informants, the livelihood effects of the park are skewedly distributed, not only amongst people, but also geographically and between different levels of society. Almost everyone lamented that while the park costs are experienced by the local people the important benefits of the park are concentrated to government and tourism entrepreneurs. For example, Pushkin remarked as follows,

> ‘You talk of benefits? Like those who say wildlife and this park are diamonds to us, hmm! They know these things inject so much money through tourism, isn’t it? That’s true, but in all fairness, compared to those people in Orapa and Jwaneng who benefit a lot from the mines and it’s visible to everyone, we do not really benefit…Yes, the park is our diamonds but it does not benefit us. To cut a long story short, I would say the park is only of benefit to government and the owners of the lodges’.

Expanding on the same issue, Seloka contended;

> ‘We’ve been displaced from Serondela (part of the park today) yet private lodges (including Chobe Game Lodge) have been allowed to operate there – inside the park. So, foreigners are preferred over locals, people who have always owned the land and are always giving way for the animals. Again, even though there are many tourism businesses here in Kasane, the local people are involved not as owners but mainly as industrial class workers. All these big lodges and tour companies you see all over are owned by foreigners or white people. Small local operators struggle to survive because the big operators have their booking facilities set up abroad for the benefit of their businesses and perhaps the convenience of the tourists…Sister, Kasane is a pathetic case; no room for expansion of the town because all of the land is taken up by either the park or the rich people, most of whom foreign to Chobe’.

Also, many key informants signaled that the park costs are more intense in the remoter communities than in Kasane. Notably, wildlife related problems and movement restrictions were cited as a big concern by mainly key informants from Parakarungu and Kachikau.

Although all the key informants acclaimed the park for tourism growth and some infrastructural and social development, this was shown to be restricted to Kasane with settlements like Parakarungu totally left out. Jakaranda hinted as follows on this matter,

> 'I appreciate the tourism facilities and whatever developments resulted from the park. But all of these are in Kasane...It's really frustrating because we all know that tourism is bringing large sums of money but the status of infrastructural development, particularly roads on the other side of the district in our settlements is appalling… Even in the district as a whole we lag behind in development; there is no referral hospital in Chobe, no senior school in Chobe, no facility for training our youth in tourism businesses and the like. Come think of it, shouldn't the money gained from tourism be at least injected back in to our district through such amenities and developments? What I'm trying to say is, Kasane too as the district headquarters is behind; besides the hotels and other tourism operations, the park has not done much in term of development.

Additionally, while tourism related employment, especially unskilled labor work and casual jobs, and CBNRM related benefits were shown to be significant locally (in the study area), it became apparent that the former is popular just in Kasane whereas the latter is more pronounced in the enclave communities. Together with this, some disparities were expressed about concentration of game meat supplies to the remoter settlements.

Factors Underlying the Distribution of the LEs and/or People's Access to Park Resources or Benefits

On this subject, each of the interviewees immediately raised issues they thought of as hindering people's access to park benefits or related resources. Six such issues surfaced as shown in Figure 4-2. Lack of self-efficacy related resources (skills,

purchasing power, etc.) and land acquisition difficulties was expressed as an acute issue by all the informants. The point was that local people are particularly deprived in respect of finance, tourism and business skills, knowledge or information, and guidance on how they can make use of the park resources to benefit their livelihoods. Together with this, some informants indicated, with special reference to Kasane and Kazungula, that the land viable for tourism is only accessible to the rich developers if they have not already acquired it. The constraint of lack of enabling resources was argued to be worsened by the fact that license fees and taxes and utility tariffs are high in Botswana. Further, the informants attributed the issue of poor tourism and business skills and guidance to lack of training programs and other relevant support which was claimed to breed disillusionment and laziness amongst the youth. In spite of these resource deficiencies, it was pointed out that the locals have keen interest in engaging in tourism economic activities. Lack of tourism and transport infrastructure, and remoteness was also specified as imposing a limiting effect of high magnitude. This was cited mainly by respondents from Parakarungu and Kachikau whose deliberations dwelt on the lack of all-weather roads and market for tourism products and the remoteness of their settlements as impeding factors. Like several other respondents, Lewatle argued;

> 'We are kind of isolated here … no roads, no tourists, yet people have lots of crafts and potential here…we have our Seperu traditional dance group too, but how do we get all these things to Kasane or to the tourists…Even the tourists themselves, they don't come here…It's not that people are not interested in conservation and tourism, but how do we do these things with poor roads like these and lack of transport. As you can see for yourself - sometimes we are cut-off completely from services because of this flooding. These hardships stop tourists from visiting us too, besides, where will they sleep here'.

Government policy, including the developments in the CBNRM program, was yet another factor presented as negating people's access to park benefits or resources.

However, some informants emphasized that sometimes it is not so much an effect of government policy but, to a large degree, failure to implement the set rules and procedures by park managers. Some informants attributed lack of full attainment of the benefits of the park or conservation to corrupt practices and mismanagement. For example, corrupt practices were indicated to have become a norm especially in the acquisition of land, applications for business permits and loans, and allocation of government support and financial aid. It also transpired that management or distribution of the CBNRM related benefits is associated with favoritism. Another key claim on this issue was that authorities tend to favor the whites or people who are already established in the tourism industry therefore making it hard for small operators or ordinary people to penetrate the market. All the key informants also held the large wildlife populations responsible for many of the adverse livelihood effects. Tshoswane narrated:

> 'There are too many animals here leading to all sorts of problems; extensive field damages by elephants and hippos and so much predation on our livestock…The predators can be terribly destructive, like hyena - it causes more damage than lion yet they do not compensate for it. Of course in winter a lion can kill up to five cattle. Life is difficult here because of these animals…and for most people there is no alternative to farming. The point I'm trying to make is, we plough our fields and keep our livestock for wildlife. If it's not wildlife, it's the floods which also cause a lot of damage on our fields. And we get close to nothing in return'.

This issue, as elaborated by some informants, is compounded and complicated by the location of the settlements between the Chobe River and wildlife habitats and relative closeness of some to key wildlife areas like Savuti and Ngoma.

Park Governance and Grassroots Involvement and/or People's Control over Park Resources

Exploration of the data on park governance and grassroots involvement showed the issue to be characterized by several undesirable aspects (Table 4-20). Essentially, nearly all of the key informants were dissatisfied, not only with the way the park is managed but also about the level of involvement of the people.

Ignorance about Park Governing Processes, Mandates or Authorities: It became clear from the onset that all but a few the key informants (mostly from Kasane), were unaware of the existing park governing structures. This, as the informants reflected, was the status quo on ground. That is, other than DWNP and the role it plays, people do not know the authorities, mandates and processes involved in park governance. Chitenge, a headman (female) of one of the wards in Kasane, expressed the following about the Local Advisory Committee (LACOM):

> 'I don't know about the existence of that committee, I know utterly nothing…It is news to me. Honestly, I don't know what it is and where it's operating from. How it was formed, what motivated its formation and what they do…They don't even come to us to explain what they do or how they will work with us…I wonder who they represent or give feedback to '.

Other informants argued that there is ignorance even among people who sit in the park governing bodies particularly Trusts members. Pushkin from a VDC in Kasane noted,

> 'Trusts members and community leaders are not educated enough about these things; what park governance is all about and the role of Trusts. Like me, they are in the dark. Some do not even understand their responsibilities'.

Non-Incorporation of People's Views in Mgmt: The arguments advanced by the key informants, notably those from community level bodies and the only represented NGO, suggest that grassroots people, including CBNRM Trust organizations, have no

say in park management decisions. The situation according to Seloka, from Seboba (a newly established CBNRM trust organization in Kasane) is:

> 'Trusts do not have powers, it's the minister who decides everything; the share of the safari hunting returns, and how we run our Trusts by bringing in irrelevant people like the D.C. to meddle with the affairs of the Trusts'.

On the same note, several informants stressed that the demolition of VTCs has seized back most of the little power people had. For example, Tshoswane, a chief from one of the settlements, remarked:

> 'Although the phasing out of VTCs has made CECT slightly efficient in terms of technical work, this has compromised working relations, the attainment of people's views and giving feedback'.

Chikodora, also a village chief, had this declaration:

> 'Of course by virtue of being in tribal authority we are sometimes asked to make suggestions on issues relating to wildlife management, but I have never seen any of our suggestions taken seriously or turned in to concrete decisions… they just remain the resolutions of our kgotla meetings. Every time the response from wildlife (i.e., DWNP) is, we are still considering your queries or we are still talking to the minister. Because of this, I've long stopped attending both CECT and LACOM meetings'.

Substantiating the issue Jakaranda had this to say:

> 'I am the chairperson of a farmers' association here and the truth is we are, even at this level, not involved to bring along the views of the farmers, the most disadvantaged by wildlife. We do communicate our queries to Wildlife Department but most of this fall on deaf ears. For instance, the damage caused by hyena is not compensated and we have long lodged this concern with DWNP but in vain. Oddly, safari hunters are more in control and their views and interests listened to'.

Trusts or CBNRM organizations were not the only structures regarded toothless but also to some extent the other two park governing bodies; DWNP and LACOM. People stated bluntly that both these two authorities act upon the minister's orders, with little autonomy of their own. For example, and Molelo, who was once a LACOM member and currently with an NGO based in Kasane, verified as follows:

> ‘DWNP tries to involve the public through the community liaison unit and the like, but for the most part really they are just implementing the park policy or park management plan…meaning, what has already been decided. As for LACOM, there is a problem; members would work on something, say a management plan, then the politician would just come and mess up everything. Most LACOM members are not pro-active, perhaps because for a long time it was manned by white people who would caucus a lot and influence decisions more than anyone, hence to this day the committee tends to protect the interests of these groups’.

In support of the foregoing Seloka noted:

> ‘LACOM members are just told what to do by the minister’. You should realize that affiliation to these governing authorities does not grant people power, especially when some of the people included, like community representatives, have no voice and are kind of on the receiving end’.

Of the three park governing authorities, DWNP management was found to be fairly reasonable in that most informants held that the department normally has good working relations with the people and would listen to people’s concerns and give feedback. However, it was made clear that DWNP does nothing to ensure that people’s views are considered in decision making.

Leadership Incompetence and Inefficient Management: The issue of leadership incompetence and inefficient management emerged as a serious issue mostly in reference to Trusts and LACOM management or representatives. This was spurred by different factors, including the appointment of irrelevant or ignorant representatives often described as political appointments or candidates whose selection was influenced by racial discrimination. The following is Jakaranda’s testimony to the issue:

> ‘There is so much indecisiveness and incompetence because people who represent us are normally not knowledgeable or conversant with our issues mainly because some are foreigners while others just irrelevant. Park authorities too, including the minister himself and senior officers, are failing us…you know, they just limit their visits to Kasane, ignoring us and our problems completely. Now I wonder; how do they know of our problems and

> how to address them, and of equal importance, how do they know people who can relevantly represent us and deliver?'

Many respondents suggested that Trusts have serious management limitations, with a tendency to mismanage funds, and low implementation capacities. Lewatle, a retiree now serving in several village level committees, elaborated as follows:

> "Honestly, the Trust approach is just a waste of our money on staff salaries, and the election of members at kgotla a waste of time because there is no delivery. There is hearsay that VTCs will be replaced by VDCs. My opinion is we are going to experience the same problems because we are talking about the same type of people and therefore the same type of management'.

Inefficiency in management was also related to DWNP's slow or poor delivery. For instance, a good number of the informants, mainly those from Parakarungu, heavily criticized wildlife officers for poor or lack of attendance to wildlife related problems. The officers were also on several occasions alleged to practice what is contrary to policy. Further, the game wardens were blamed for ineffective control of the wildlife related impacts. The picture is demonstrated below by Sefefo:

> 'Wildlife officers are themselves unable to control the animals and their movements and impacts. What more about ordinary people, I mean us; what can we do...We are just expected to mix and live with these animals peacefully. They don't even provide any protective measures to help us in the event of animal attacks or any danger we may be exposed to'.

In spite of the incompetencies leveled against DWNP, almost all the informants applauded the department for preserving wildlife and containing poaching to lower levels. Some cited that despite their limited resources wildlife officers try whatever they can to help people curb the wildlife related conflicts. On top of the above-cited issues about leadership incompetence, was the another view that park management in general lacks leadership vision especially with regard to empowering community leadership and advising or supporting local people on how they can benefit from the park and tourism.

Unjust Treatment of the People and Lack of Trust in their Capabilities: Most of the informants expressed persistent claims of unfair treatment of people, lack of trust in their capacities and disrespect of their views by park governors. The general feeling was that authorities undermine the local people or ethnicities and their ability to manage natural resources or participate in tourism development. The picture is epitomized below by Seloka's expression:

> 'Government does not have any faith in Trusts, that's why they phased out VTCs. There is just an attitude from the park authorities that we know nothing and are good for nothing, and therefore cannot say or do anything sensible and responsible. Because of these and other issues unknown to us they do not take our needs and views seriously'.

On the same note Chikodora asserted:

> 'Wildlife department's awarding or withdrawal of Honorary Wildlife Officers/Wardens to community members is not open and transparent. We do not understand the criteria used for selecting these officers nor are we involved. Sometimes people's services are terminated without notice'.

As highlighted in the following comment by Singa, DWNP was also alleged to treat people unfairly on issues relating to human-wildlife conflicts:

> 'When they get little evidence that we've killed wildlife they waste not time and come straightaway so that they can send us to prison, when wildlife kills a person there is nothing they can do, when wildlife kills our livestock we are lying because often if not always they come when the evidence for damage has vanished'.

It was further indicated that there is tendency to bias the allocation of some positions, priorities or favors to the rich (or white) people. People in this category were regarded by most of the informants as the key beneficiaries of the park and most influential on park governance. It was also claimed that they have no regard for locals and would plainly boost of their power and connection with the ultimate authorities. Moreover, some informants felt that the tendency of government to appoint chiefs or headmen on

behalf of people or to appoint court presidents as chiefs or headmen is unfair and contributing to the misrepresentation and unjust treatment of people in park governance. The gist of the matter was that such representatives would normally be involved for self-interest, and to just take and implement orders as dictated from the top. Jakaranda expressed the following sentiments about grassroots representation in park governing bodies:

> '…I bet they have these people they impose on us as headmen or chiefs, the so called court presidents, representing us in this committee you've just told me about, LACOM. This is a terrible mistake. The least they can do is to consult the chief of this area, Moffat Maiba Sinvula, who is more knowledgeable about people's issues, to assist in the selection of the right candidates to represent the people in LACOM'.

Participation in Conservation of the Protected Resources (Conservation Behaviors)

Types of behaviors: According to the key informants both positive and negative forms of conservation behaviors are practiced in the study area. The predominantly mentioned positive behaviors included: adherence to conservation rules, participation in problem animal control (PAC) activities, attendance to environmental awareness building workshops, policing of illegal behaviors and participation in fire control activities. All, but the last two categories of the positive behaviors were said to be significantly practiced. Thembiza, a headman from one of the settlements, explained:

> 'People here are very cooperative and involved in some conservation related initiatives. For example, there is widespread use of tins, plastics, heavy-duty kraals, and recently pepper to deter elephants and predators. Elephants quickly get used to these things though… in my view, only electric fence will work with elephants…The other thing, we now have escort guides and honorary game wardens policing illegal behaviors in our communities and they occasionally report such incidences to us or Wildlife… Sometimes Forestry and Wildlife conduct conservation workshops here which people often attend in large numbers. Some residents are even members of the fire prevention committee'.

On the negative, unlawful actions such as illegal burning of the veld, poaching, shooting or killing of problem animals, and some acts of animal brutality, were cited. Almost everyone, including the officer from DWNP claimed that subsistence poaching was low, while wildfires were noted to be occurring at a high rate, usually human-induced. In contrary to the low levels of subsistence poaching, commercial poaching was described as very serious. On the whole, all the key informants impressed that the positive behaviors were prevalent and far outweighing the negative ones; people in the Chobe Enclave were shown to be ahead of others in environmental consciousness and participation in conservation promoting activities.

Motives for the behaviors: Both positive and negative conservation behaviors were shown to have motives (Figure 4-3). The main themes that surfaced in respect of motives for the positive behaviors or non-practice of negative behaviors included: increased environmental consciousness, CBNRM appreciation or benefits, fear of penalties or consequences of non- compliance or of committing negative behaviors and fear of dangerous animals. Environmental consciousness and CBNRM impacts emerged particularly in the Enclave but less so in Kasane. Deliberations on the status of some conservation behaviors like poaching and illegal grazing in the park were frequently accompanied by such statements as the one by Jakaranda;

> ‘You know what; there are dangerous animals around here. Who would dare go out there and risk their life just to kill an impala. Similarly, no one would intentionally graze their cattle in the park. I mean, giving their hard earned livestock to predators…no, people go there rarely just to herd their livestock out of the park, that is, if they can’t just forget about it’.

Captain, a representative from DWNP, concurred with the foregoing sentiments:

> ‘This park has many dangerous animals, people fear animals, and you know you’ll be putting your life in danger. So, generally people here would by all means possible avoid getting themselves in such situations … I

> mean, the encounters with the animals. Of course commercial poachers would do these things because they are often well equipped'.

The motives cited for the practice of the negative behaviors or non-involvement in activities promoting conservation are depicted in Figure 4-3 and discussed below. Wildfires were, to a large extent, presumed to be human-induced for different reasons or objectives relating to illegal or abusive management or use of resources (pasture, pests, wildlife and claims) by different user groups. A couple of theories explaining the human causes of unauthorized burning were described by different informants. In short, several user groups are purported responsible for most of the wildfires as follows: 1) farmers or harvesters would deliberately burn to kill ticks, deter wildlife, or promote new growth in pasture or thatching grass, 2) poachers burn to destroy signs or evidence of poaching, 3) claimants from fire extinguishing assignments burn for purposes of getting more claims, and 4) campers would cause accidental fires because of negligence.

Several other motives were advanced for the undertaking of unlawful actions in general. For instance, everybody identified lack of rewards as a motive with a strong impetus. As testimony to this, it was made clear that while, by law, people are expected to volunteer their time and services and participate in fire control activities during outbreaks, they hardly get involved because there are no rewards for the activity. Thembiza's comment pictures the scenario:

> 'People drag their feet when it comes to fire extinguishing tasks because they are not paid while the employed officers from DWNP, Forestry and other departments are paid. People know these things and we can't do anything as community leaders to convince them otherwise. In other jobs where no one is paid people volunteer cheerfully and in big numbers. You should have seen what a big team we had from here and Satau a few days ago when we were restoring the road to Kachikau after being washed away by the floods'.

Poor, or zero, compensation was also alluded to by all the key informants except one (from DWNP) as a factor encouraging some of the negative behaviors. A chairperson of a farmers' association referred to the compensation they normally get for livestock predation and damages on fields as 'peanuts and a sorry situation' because, as he further pointed out, they are not even involved in the determination of the compensation prices for the different assets. This situation was noted to be worsened by the fact that loss of human life from wildlife attacks or other factors like floods is not compensated for. Although viewed as not having a big impact, it was also indicated that some illegal activities are undertaken as a result of hunger and desperation.

Lack of involvement in natural resource governance was also presented as having a significant bearing on the undertaking of the negative behaviors or non-performance of the positive ones. Several informants suggested that because people are not involved in management of wildlife, they do not see the relevance of being involved in conservation promoting activities such as fire control and policing of illegal behaviors. The scenario was alleged to be more prevalent in Kasane than in the other two settlements. One other factor that surfaced as a strong motive for practices like poaching is curtailment of subsistence or citizen hunting. Other negative practices like shooting or killing of problem animals were shown to be occurring at a higher rate, but justified as protection of assets and life (Figures 5.5 and 5.6). DWNP's limitations mainly poor attendance to wildlife-related issues was also shown to prompt people to take law in to their hands. Additionally, some informants held that there is disillusionment and despondency amid people generally because of lack of attainment of benefits from conservation or tourism, subsequently leading to engagement in the adverse behaviors.

It was hinted that it is because of such frustrating circumstances that some people would just trap and kill animals like hyena which are very destructive yet not compensated for. Still on this subject, some informants including the officer from DWNP cited two incidences in Lesoma and Ngoma whereby respectively about forty and sixty vultures were killed by poison, and presumed to have been caused by frustrated farmers.

Summary

As background, the socio-economic setting including the key livelihood activities of the sampled population has been described using frequencies and descriptive statistics. The measures were also adopted to review the magnitude and distribution of all the study variables. In terms of favorability, the livelihood effects of the park have been shown to be moderate (M=2.68). Participation in park governance, like perceived control over park resources, is extremely low or non-existent. Perceived access to park resources varies. Following the preliminary analysis of the data involving factor analysis, the study hypotheses were tested using various statistical techniques including ANOVA, standard multiple regression and simple linear regression. The comparative analysis of the livelihood effects of the park revealed significant variation between the three comparison settlements while conservation behaviors are shown not to differ. The multiple regression model involving three predictors (PPG, PC and PA) has shown to be a good predictor of the livelihood effects of the park. The model as a whole explained 39% of the variance in the dependent variable, while each of the predictors made a significant contribution. A separate correlational analysis revealed that livelihood effects of the park has a modest positive impact (r=.29) on conservation behaviors. Figure 4-1

summarizes the results of the two correlational analyses in addition to depicting the levels (mean scores) of each of the study variable.

Framework analysis was used to process and synthesize the many and diverse points of view from the key informants interviews in to themes emerging in respect of the study questions and subsequently in to meaningful conclusions. The key themes extracted from the data are shown together with the sub-themes in Table 4-15 and Figures 4-2 and 4-3. The results of the key informant interviews correspond with, but greatly enrich, the findings of both the descriptive and inferential statistical analyses outlined earlier.

Table 4-1. Basic Socio-Economic Characteristics of the Study Population

Characteristic	Frequency	Percentage
Gender of HH Head (N=416)		
Male	242	58
Female	174	41.7
Age of HH Head (N=414)		
18 - 30 Years	56	13.4
31 - 50 Years	193	46.3
51 - 65 Years	105	25.2
Above 65 Years	60	14.4
Education level of HH Head (N=413)		
No Schooling	50	12
Non-formal Schooling	9	2.2
Primary	102	24.5
Secondary	138	33.1
Vocational/Technical	54	12.9
College/University	60	14.4
Occupation of HH Head (N=417)		
Professional, Skilled	226	54.2
Unskilled Laborer	46	11
Peasant Farmer	48	11.5
Small Business Owner	26	6.2
Retiree / Pensioner	3	0.7
No Occupation	68	16.3
Ethnicity (N=417)		
Subia	211	50.6
Tawana	47	11.3
Sarwa	18	4.3
Lozi	3	0.7
Nyasa	4	1
Other	134	32.1
Length of stay in the area (N=414)		
Less than 10 years	131	31.4
11 - 20 years	55	13.2
21 - 30 years	31	7.4
31 - 40 years	22	5.3
Above 40 years / Since Birth	175	42
Place of Origin (N=415)		
Other Settlements within Chobe District	119	28.5
Outside Chobe District, within Botswana	115	27.6
Outside Botswana	13	3.1
N/A (lived here since birth)	168	40.3

Table 4-1. Continued

Characteristic	Frequency	Percentage
Reason for Moving to Study Settlements (N=417)		
Employment Opportunity	147	35.3
Family	33	7.9
Livelihood Opportunity	54	12.9
Land Related Factors	10	2.4
Push Factors (War, conflicts, etc.)	5	1.2
N/A (Have lived here since birth)	168	40.3
HH Size (N=406)		
0 - 4 People	166	39.8
5 - 8 People	166	39.8
More than 8 People	74	17.7
HH Monthly Income (N=412)		
Less than P200	10	2.4
P201 - P500	50	12
P501 - P1000	39	9.4
P1001 - P1500	30	7.2
P1501 - P2000	52	12.5
P2001 - P3000	81	19.4
More than P3000	150	36

Table 4-2. Main Source of Household Income

Source of Income	Kasane		Kachikau		Parakarungu		Study Area	
	Freq	%	Freq	%	Freq	%	Freq	%
Fixed Salary / Formal Job	221	81	41	50.6	23	36.5	285	68.3
Casual Wages / Piece Jobs	15	5.5	20	24.7	11	17.5	46	11
Small Business	21	7.7	6	7.4	2	3.2	29	7
Farming / Fishing / Harvesting	1	0.4	2	2.5	18	28.6	21	5
Old Age Pension	2	0.7	9	11.1	2	3.2	13	3.1
Remittances	6	2.2	3	3.7	5	7.9	14	3.4
Other (e.g. rent, welfare)	7	2.6	0	0	2	3.2	9	2.2
Total	273	100	81	100	63	100	417	100

Table 4-3. Frequency Distributions (%) for the Importance of Different Activities to Household Livelihood

Livelihood Activity	Kasane (%) n = 273					Kachikau (%) n = 81					Parakarungu (%) n = 63					Study Area (%) N = 417				
Park Related	VU	U	V	I	VI	VU	U	V	I	VI	VU	U	V	I	VI	VU	U	V	I	VI
TourServ	39	12	5	5	5	16	2	0	0	0	13	1	0	0	0	68	16	5	5	6
HotelServ	27	19	5	4	11	15	3	0	1	0	13	0	0	1	0	55	22	6	6	11
CraftEntpr	36	22	2	3	2	8	8	2	1	0	6	5	3	1	0	50	35	7	6	3
Entertain	42	18	4	1	0	12	7	1	0	0	4	8	1	2	0	58	32	6	3	1
ParkJob	58	3	0	0	4	17	2	0	0	0	13	1	0	0	0	88	6	1	1	4
Other	30	24	7	1	4	4	10	6	0	0	4	4	7	0	0	38	37	20	1	4
Averages	39	16	4	2	4	12	5	2	0	0	9	3	2	1	0	60	25	8	4	5
Non-Park	VU	U	V	I	VI	VU	U	V	I	VI	VU	U	V	I	VI	VU	U	V	I	VI
Livestock	36	6	6	9	10	5	2	1	6	5	3	1	1	2	8	43	9	8	17	23
Arable	36	7	8	7	8	4	2	5	4	4	1	0	2	4	8	41	10	15	15	20
Gathering	31	13	14	6	2	3	3	11	3	0	1	1	6	6	1	35	17	31	14	3
Fuelwood	27	10	14	10	4	2	4	11	2	0	0	0	9	4	0	30	14	35	16	5
Fishing	27	10	17	10	2	0	2	9	7	0	0	0	3	6	6	27	12	30	23	8
Sub-Hunting	53	9	3	1	0	16	3	0	0	0	14	0	0	0	0	83	12	4	1	1
Formal Emp.	10	1	2	3	50	7	2	1	1	8	7	2	0	1	5	24	5	3	6	63
Piece Jobs	33	6	13	11	3	6	2	3	5	2	3	3	6	2	2	42	11	22	18	7
Destitute	59	4	0	2	0	14	2	1	1	0	11	0	0	2	2	84	7	1	5	3
HIV/AIDS	58	5	1	0	1	15	2	0	0	0	13	1	0	0	0	86	8	2	1	1
Old Age	53	4	2	5	2	13	1	0	2	2	9	0	0	2	3	75	6	3	9	7
Other	51	3	2	4	6	17	2	0	0	0	12	0	0	1	1	80	5	3	5	7
Averages	40	7	7	6	7	9	3	4	3	2	6	1	2	3	3	54	10	13	11	12

NB: Livelihood activities were measured on a 5-point scale ranging from: 1=Not at all important (VU), 2=Not important (U), 3=Varies (V), 4=Important (I), and 5= Very Important (VI). Percentages rounded to the nearest whole number (Zeros represent all % <0.5)

Table 4-4. Descriptive Statistics for Livelihood Effects (LEs) of the Park

Livelihood Effects (3 Dimensions, 24 Items)	Kasane (n=273)		Kachikau (n=81)		Parakarungu (n=63)		Study Area (n=417)	
	M	SD	M	SD	M	SD	M	SD
Involvement in Tourism Activities:								
Tour Operating Services	1.75	1.20	1.23	.71	1.24	.84	1.57	1.10
Hotel and Hospitality Enterprises	2.16	1.40	1.31	.82	1.38	.92	1.88	1.30
Craft and Curio Enterprises	1.67	1.00	1.86	.97	2.13	1.20	1.77	1.03
Tourist Entertainment (dance, music, etc.)	1.48	.81	1.53	.63	2.13	1.10	1.59	.86
Other (safaris, game meat supplies, etc.)	1.85	1.00	2.27	.76	2.43	.93	2.02	.98
Dimension Means and SDs	1.78	.58	1.64	.41	1.86	.44	1.77	.54
Attainment of Park Benefits:								
Park related employment	1.31	.95	1.17	.54	1.13	.46	1.26	.83
Tourism related employment/income	2.65	1.73	1.73	1.11	2.35	1.27	2.43	1.60
Ownership of tourism related assets	1.50	1.11	1.22	.61	1.48	.86	1.44	1.00
Environmental awareness/knowledge	2.56	1.13	2.60	1.20	3.03	1.24	2.64	1.17
Improved socio-economic status	2.55	1.52	1.72	.97	2.21	1.07	2.34	1.41
Game meat	1.48	.73	2.22	.84	2.38	.81	1.76	.85
Overall benefits of wildlife	2.00	1.08	2.10	.77	2.43	.64	2.08	.98
Overall benefits of tourism activities	2.77	1.54	1.95	1.00	2.32	1.13	2.54	1.43
Overall benefits of park management orgs	1.87	1.11	1.79	.79	2.56	1.09	1.96	1.08
Dimension Means and SDs	2.08	.77	1.83	.53	2.21	.53	2.05	.71
Experience of Park Costs:								
Livestock predation	3.88	1.50	2.93	1.52	2.52	1.45	3.49	1.59
Property damages by wildlife	3.48	1.22	2.96	1.26	2.35	1.10	3.21	1.28
Grazing competition	4.26	1.10	3.88	1.04	4.22	.96	4.18	1.08
Disease transmissions	4.30	1.03	3.81	1.09	3.92	.99	4.15	1.06
Loss of access to or use of resources	3.34	1.29	3.14	1.23	2.60	.94	3.19	1.26
Loss of control over resources	3.32	1.31	3.17	1.22	2.60	.96	3.18	1.27
Loss / endangerment of human life	3.90	.95	4.20	.81	4.05	.85	3.98	.92
Overall costs of wildlife	2.91	1.29	2.49	1.27	2.08	1.04	2.71	1.29
Overall costs of tourism related activities	4.55	.66	4.44	.59	4.44	.71	4.51	.66
Overall costs of park management orgs	4.53	.65	4.48	.59	4.49	.78	4.51	.66
Dimension Means and SDs	3.85	.72	3.55	.61	3.33	.45	3.71	.70
Overall Variable Means and SDs	2.75	.49	2.51	.30	2.60	.34	2.68	.45

NB: LEs were measured on a 5-point scale with scores ranging from 1 to 5. For the positive effects (involvement in tourism activities and attainment of park benefits) the scores denoted the following: 1=Not at all So (NAS), 2=Not So (NS), 3=Varies (V), 4=So (S) and 5=Perfectly So (PS). The codes denoted the opposite for negative effects (park costs) as follows: 1=Perfectly So (PS), 2=So (S), 3=Varies (V), 4=Not So (NS), and 5=Not at all So (NAS). In terms of the favorability of the LEs, after reverse coding the negative effects, the codes implied the following: 1=Very Unfavorable, 2=Unfavorable, 3=Sometimes, 4=Favorable and 5=Very Favorable. Thus, higher scores indicate the LEs are more favorable while lower scores show that they are less favorable.

Table 4-5. Descriptive Statistics for Conservation Behaviors (CBs)

Conservation Behaviors (3 Dimensions, 15 Items)	Kasane (n=273)		Kachikau (n=81)		Parakarungu (n=63)		Study Area (n=417)	
	M	SD	M	SD	M	SD	M	SD
Compliance with Conservation Rules:								
Rules prohibiting poaching / illegal hunting	4.78	.42	4.75	.60	4.79	.45	4.78	.46
Rules prohibiting illegal harvesting (VPs)	4.64	.57	4.74	.61	4.73	.52	4.67	.57
Rules prohibiting grazing in the park	4.75	.51	4.81	.55	4.79	.60	4.77	.53
Park entrance rules	4.84	.38	4.90	.49	4.98	.13	4.88	.38
Wild fire control / prevention rules	4.84	.41	4.89	.50	4.95	.22	4.86	.41
Dimension Means and SDs	4.77	.36	4.82	.52	4.85	.26	4.79	.38
Practicing Positive CBs:								
Policing of practices counteracting conservation	2.23	1.09	1.90	1.16	2.22	1.16	2.16	1.12
PAC protective / harmless activities	2.05	1.12	2.81	1.29	3.52	1.15	2.42	1.28
Environmental education/awareness building	2.09	1.10	1.94	1.19	1.78	1.11	2.01	1.12
Wild fire control activities	2.14	.98	2.28	1.03	2.57	1.03	2.23	1.01
Dimension Means and SDs	2.12	.88	2.23	.72	2.52	.81	2.21	.85
Engaging in Negative CBs:								
Unauthorized collection of veld products, etc.	4.64	.67	4.52	.57	4.32	.64	4.57	.66
Grazing in the park without permission	4.81	.55	4.69	.49	4.57	.56	4.75	.55
Entrance to the park without permission	4.94	.38	4.93	.26	5.00	.00	4.95	.33
Burning of the veld without permission	4.94	.38	4.78	.42	4.81	.40	4.89	.40
Hunting of wildlife without permission	4.84	.47	4.65	.50	4.40	.58	4.74	.52
PAC destructive / harmful activities	4.52	.85	3.67	1.39	3.24	1.19	4.16	1.15
Dimension Means and SDs	4.78	.41	4.54	.44	4.39	.37	4.68	.44
Overall Variable Means and SDs	4.07	.31	4.02	.33	4.05	.33	4.06	.32

(VPs = veld products, PAC = problem animal control)

CBs were measured on a 5-point scale with scores ranging from 1 to 5. The codes for the positive behaviors (compliance with conservation rules and practices facilitating conservation) denoted the following: 1=Not at all So (NAS), 2=Not So (NS), 3=Varies (V), 4=So (S), and 5=Perfectly So (PS), while they symbolized the opposite for the negative conservation behaviors as follows: 1=Perfectly So (PS), 2=So (S), 3=Varies (V), 4=Not So (NS), and 5=Not at all So (NAS). In terms of overall environmentally sensitiveness or positiveness of the CBs, higher scores indicate more positive CBs while lower scores suggest less positive CBs.

Table 4-6. Descriptive Statistics for Participation in Park Governance (PPG)

Participation in Park Governance (11 Items)	Kasane (n=273)		Kachikau (n=81)		Parakarungu (n=63)		Study Area (n=417)	
	M	SD	M	SD	M	SD	M	SD
Ever served in Local Advisory Committee (LACOM)	1.08	.44	1.00	.00	1.00	.00	1.06	.36
Ever served in CBNRM Trust Body (CECT, KALEPA, etc.)	1.11	.48	1.25	.70	1.38	.77	1.18	.59
Ever served in Department of Wildlife and National Parks (DWNP)	1.26	.94	1.05	.44	1.06	.40	1.19	.81
Ever participated in community wildlife quota management decisions	1.09	.37	1.12	.46	1.19	.56	1.11	.42
Ever participated in problem animal management decision making	1.12	.55	1.02	.22	1.02	.13	1.09	.46
Ever participated in compensation decision making	1.09	.48	1.01	.11	1.00	.00	1.06	.39
Ever participated in anti-poaching decision making	1.11	.50	1.02	.22	1.05	.28	1.08	.43
Ever participated in wild fire management decision making	1.09	.43	1.04	.25	1.10	.39	1.08	.39
Ever participated in LACOM Planning and Management	1.07	.38	1.06	.40	1.00	.00	1.06	.35
Ever participated in DWNP Planning and Management	1.16	.70	1.02	.22	1.02	.13	1.11	.58
Ever participated in CBNRM Trust Body Planning and Management	1.10	.47	1.21	.67	1.24	.62	1.14	.54
Overall Variable Mean	1.12	.36	1.07	.20	1.10	.19	1.11	.31

NB: Participation in park governance items were measured on a 5-point scale ranging from: 1=Never (N), 2=Rarely (R), 3=Sometimes (S), 4=Often (O), and 5=Always (A)

Table 4-7. Thematic Analysis Results of Perceptions about Park Governance and Grassroots Involvement

Perception Category	Frequency	%
No Consultation or Knowledge Sharing/Building	115	27.6
Just Consultation to Disseminate Information, Gather Opinions and Address Wildlife Queries	128	30.7
Consultation and Incorporation of People's Ideas	38	9.1
Mismanagement and Discriminative Practices	15	3.6
Unjust and Inadequate Management	85	20.4
Other Factors (e.g. park management protects our wildlife and promotes tourism development; DWNP protects us from wildlife attacks; the park is used to earn government revenue which is used for our development)	32	7.7
Total	413	90.1

Table 4-8. Descriptive Statistics for Perceived Control Over Park Resources

Perceptions about household control over park resources (8 items)	Kasane (n=273)		Kachikau (n=81)		Parakarungu (n=63)		Study Area (n=417)	
	M	SD	M	SD	M	SD	M	SD
Control over wildlife	1.25	.69	1.15	.39	1.25	.60	1.23	.63
Control over tourism activities (or income)	2.15	1.30	1.36	.66	1.35	.63	1.87	1.18
Control over LACOM management	1.18	.53	1.01	.11	1.00	.00	1.12	.44
Control over DWNP management	1.48	.66	1.28	.45	1.11	.44	1.38	.61
Control over CBNRM body management	1.49	.70	1.95	.84	2.00	.92	1.66	.80
Control over LACOM members	1.18	.52	1.01	.11	1.00	.00	1.12	.43
Control over DWNP officials	1.45	.64	1.33	.47	1.10	.35	1.37	.58
Control over CBNRM Board members/offi.	1.47	.67	2.02	.87	2.10	.91	1.67	.80
Overall Variable Mean	1.45	.44	1.39	.33	1.36	.33	1.43	.41

NB: Perceptions about control over park resources were measured on a 5-point scale ranging from: 1=Absolutely No Control (ANA), 2=No Control (NC), 3=Varies (V), 4=Control (C), and 5=Complete Control (CC)

Table 4-9. Descriptive Statistics for Perceived Access to Park Resources (PA)

Beliefs about household access to park resources (8 items)	Kasane (n=273)		Kachikau (n=81)		Parakarungu (n=63)		Study Area (n=417)	
	M	SD	M	SD	M	SD	M	SD
Your HH has ability/potential to make use of wildlife to earn a living	1.92	1.06	2.07	.95	2.33	1.09	2.01	1.10
Your HH has ability/potential to earn income or make a living from tourism related activities	3.05	1.19	2.36	1.09	2.41	1.04	2.82	1.19
Your HH has ability/potential to access livelihood related support and ideas from park management bodies	2.76	1.13	3.31	1.16	3.29	1.04	2.95	1.15
Your HH can easily earn income / a living from tourism related activities	2.36	1.15	1.62	.80	1.40	.71	2.07	1.11
Your HH can easily access livelihood related support and ideas from park management bodies	2.55	1.13	3.17	1.21	2.76	1.10	2.70	1.17
Your HH lacks the money needed to make use of park related resources or to engage in tourism activities	2.37	.96	1.79	.70	1.37	.58	2.11	.95
Your HH lacks the skills/knowledge needed to make use of park resources / to engage in tourism activities	2.67	1.11	1.89	.92	2.30	1.09	2.46	1.12
Your HH is not able to make use of park resources or engage in tourism activities because it is not affiliated to park management bodies	2.99	1.11	2.94	1.21	2.86	1.22	2.96	1.15
Overall Variable Mean	2.58	.74	2.39	.64	2.34	.60	2.51	.71

NB: Beliefs about access to park resources were measured on a 5-point scale ranging from: 1=Definitely False (DF), 2=False (F), 3=Varies (V), 4=True (T), and 5=Definitely True (DT). Negative beliefs were reverse coded. Park management bodies include LACOM, DWNP, and CBNRM Trust organization.

Table 4-10. KMO and Barlett's Test of Sphericity Measures and Determinants of R-Matrices

Construct Scale	KMO	Bartlett's	Determinant of the R-Matrix
Livelihood Effects Items (24)	.756	.000	7.02E-06
Perceived Control over Park Resources Items (8)	.600	.000	.001
Perceived Access to Park Resources Items (8)	.711	.000	.036
Participation in Park Governance Items (11)	.809	.000	.000
Conservation Behaviors Items (15)	.746	.000	.000

Table 4-11. Results of multiple regression collinearity diagnostics

		Collinearity Statistics	
Dependent Variable	Independent Variable	Tolerance	VIF
Livelihood Effects	Participation in Park Governance	0.609	1.643
	Perceived Control over Park Resources	0.453	2.205
	Perceived Access to Park Resources	0.674	1.483

Table 4-12. Variable means, standard deviations, and correlations

	LEs	PPG	PC	PA	M	SD
Livelihood Effects (LEs)	1				0.42	.72
Participation in Park Governance (PPG)	.164	1			1.11	.31
Perceived Control (PC)	.428	.622	1		1.43	.41
Perceived Access (PA)	.611	.297	.566	1	2.51	.71

(NB: Livelihood Effects were logarithmically transformed)

Table 4-13. Summary of the standard multiple regression analysis for variables predicting livelihood effects of the park

Predictor Variable	B	SE	Beta
Constant	.267	.013	
Participation in Park Governance	-.027	.011	-.118*
Perceived Control over Park Resources	.035	.010	.199*
Perceived Access to Park Resources	.054	.005	.533*

$R=.391$; R^2 Adjusted = .387; $F(3.413)=88.54$; $*p<.05$
(NB: Livelihood Effects were log transformed)

Table 4-14. Profile of the key informants

Settlement	Organization	Level	Designation	Sex	Pseudonym
Kasane	Tribal Authority	Local	Headman	F	Chitenge
Kasane	Village Development Committee	Local	Member (Newtown)	M	Pushkin
Kasane	Ditshwanelo (Human Rights) NGO	Regional / National	Coordinator	M	Molelo
Kasane	Seboba (CBNRM Trust)	Local	Chairperson	M	Seloka
Kasane	Dept of Wildlife and National Parks	Regional	Officer	M	Captain
Kachikau	Tribal Authority	Local	Headman	M	Tshoswane
Kachikau	Clusters' (Crime Prevention) Executive Committee	Local	Vice Chairperson	F	Sefefo
Kachikau	CECT (CBNRM Trust)	Local	Board Member	M	Singa
Parakarungu	Tribal Authority	Local	Chief	M	Chikodora
Parakarungu	Tribal Authority	Local	Headman of Arbitration	M	Thembiza
Parakarungu	Parents and Teachers' Association	Local	Chairperson	M	Lewatle
Parakarungu	Farmers' Association	Local	Chairperson	M	Jakaranda

Table 4-15. Themes Extracted from the Analysis of the Key Informant Interviews

Key Theme	Sub-Themes
Nature of the livelihood effects	Positive effects (park benefits) - Direct economic or tangible benefits - Non-economic or intangible benefits - CBNRM related benefits - Tourism development - Biodiversity conservation Negative effects (park costs) - Wildlife related impacts / conflicts - Movement restrictions - Resource access restrictions - Other (tourist transit traffic and dust)
Distribution of the livelihood effects	Restriction of park costs to local communities Concentration of park benefits to government and tourism entrepreneurs
Factors underlying the livelihood effects	Lack of self-efficacy related resources and land acquisition difficulties Discrimination and corrupt practices Lack of tourism and transport infrastructure, and remoteness Government policy Mismanagement and corrupt practices High wildlife densities Location of settlements within wildlife habitats and relative closeness of some to key wildlife areas
Park governance and grassroots involvement	Ignorance about park governing processes, mandates or authorities Non-incorporation of people's views in management Leadership incompetency and inefficient management Unjust treatment of people and lack of trust in their capabilities
Conservation behaviors	Positive Behaviors - Adherence to conservation rules - Participation in practices promoting conservation Negative Behaviors - Engaging in practices counteracting conservation
Motives for the conservation behaviors	Increased environmental consciousness CBNRM appreciation or benefits Fear of penalties or consequences of non-compliance Fear of dangerous animals Illegal or abusive management of resources (pasture, pests, wildlife, etc.) Lack of rewards Poor or lack of compensation Starvation and desperation Lack of involvement in resource management Curtailment of subsistence or citizen hunting Protection of assets and human life DWNP's poor attendance to wildlife issues (or DWNP's limitations) Disillusionment and Despondency

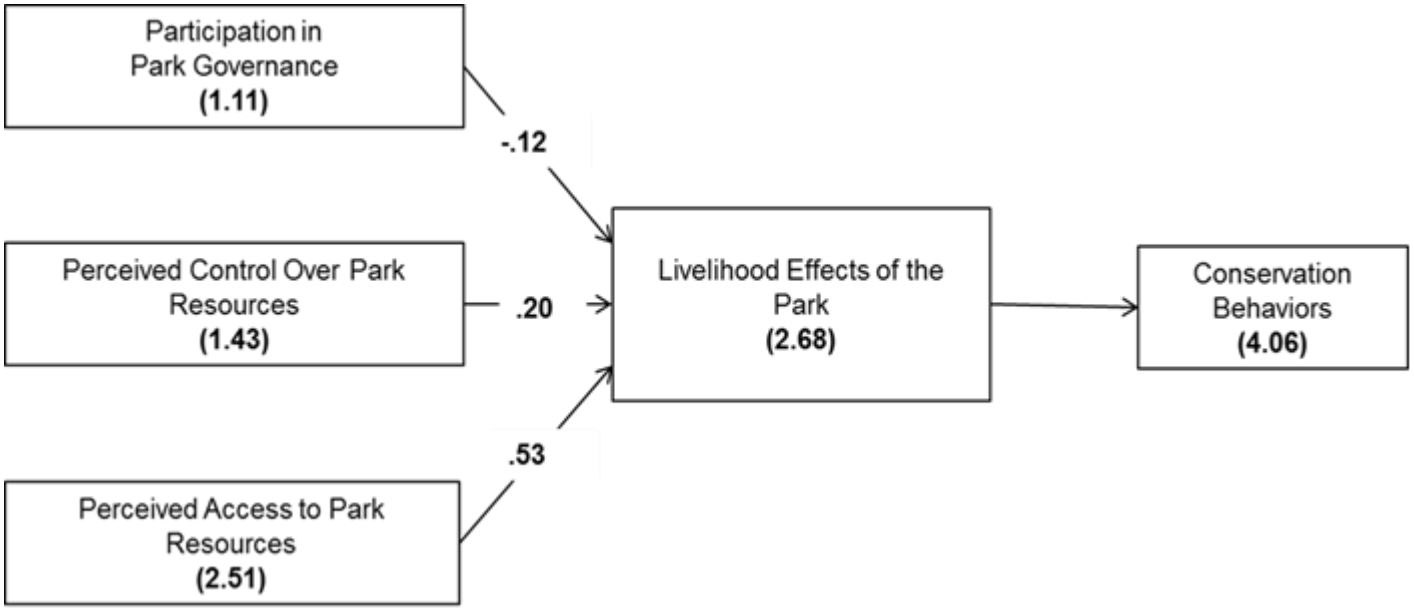

Figure 4-1. Path diagram showing predictors of the livelihood effects of the park, and the impact of the livelihood effects on conservation behaviors. NB: Variables mean scores are shown in brackets

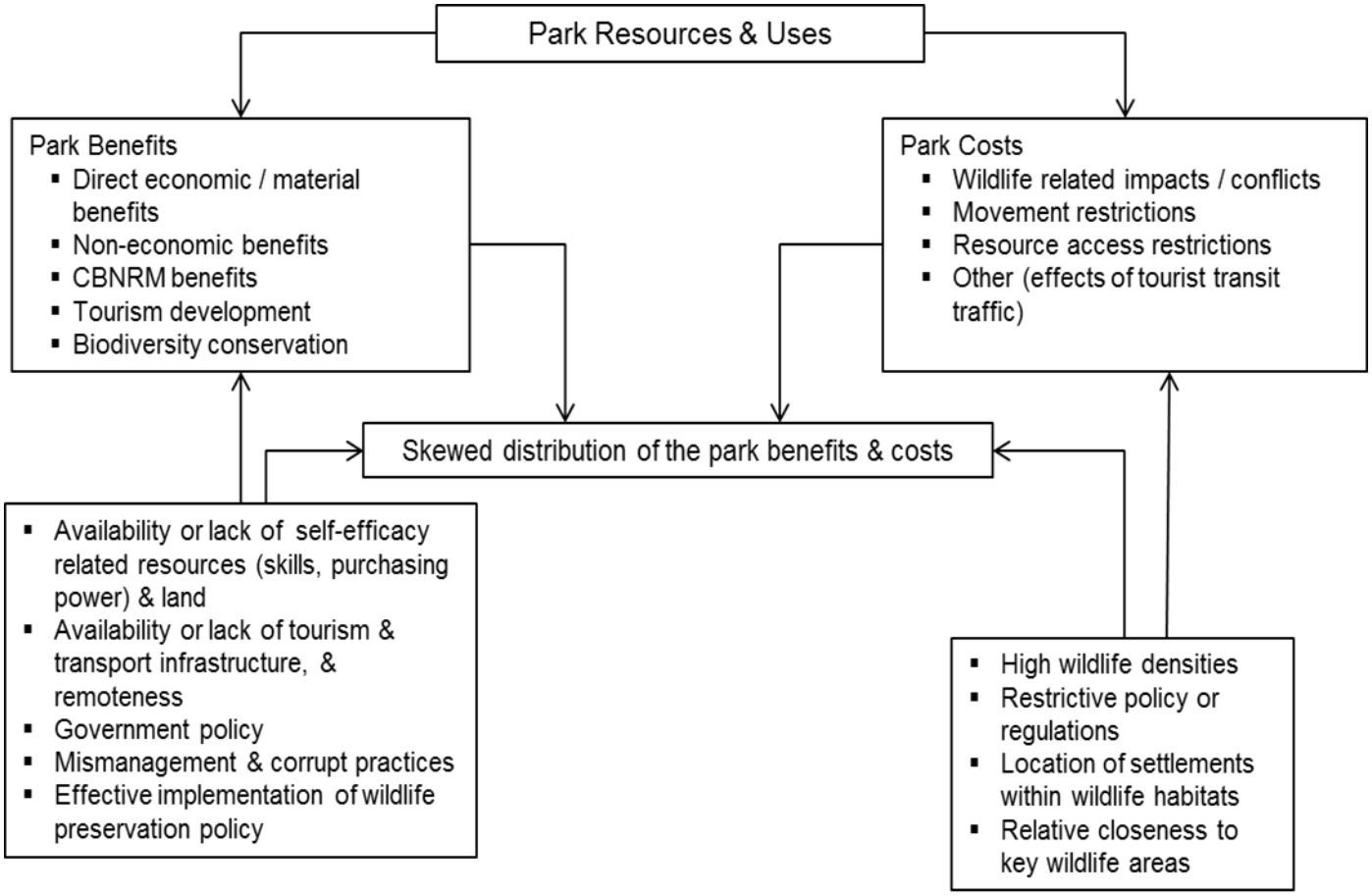

Figure 4-2. A causal network reflecting key informants' perspective about the nature and distribution of the livelihood effects of the park and the underlying factors

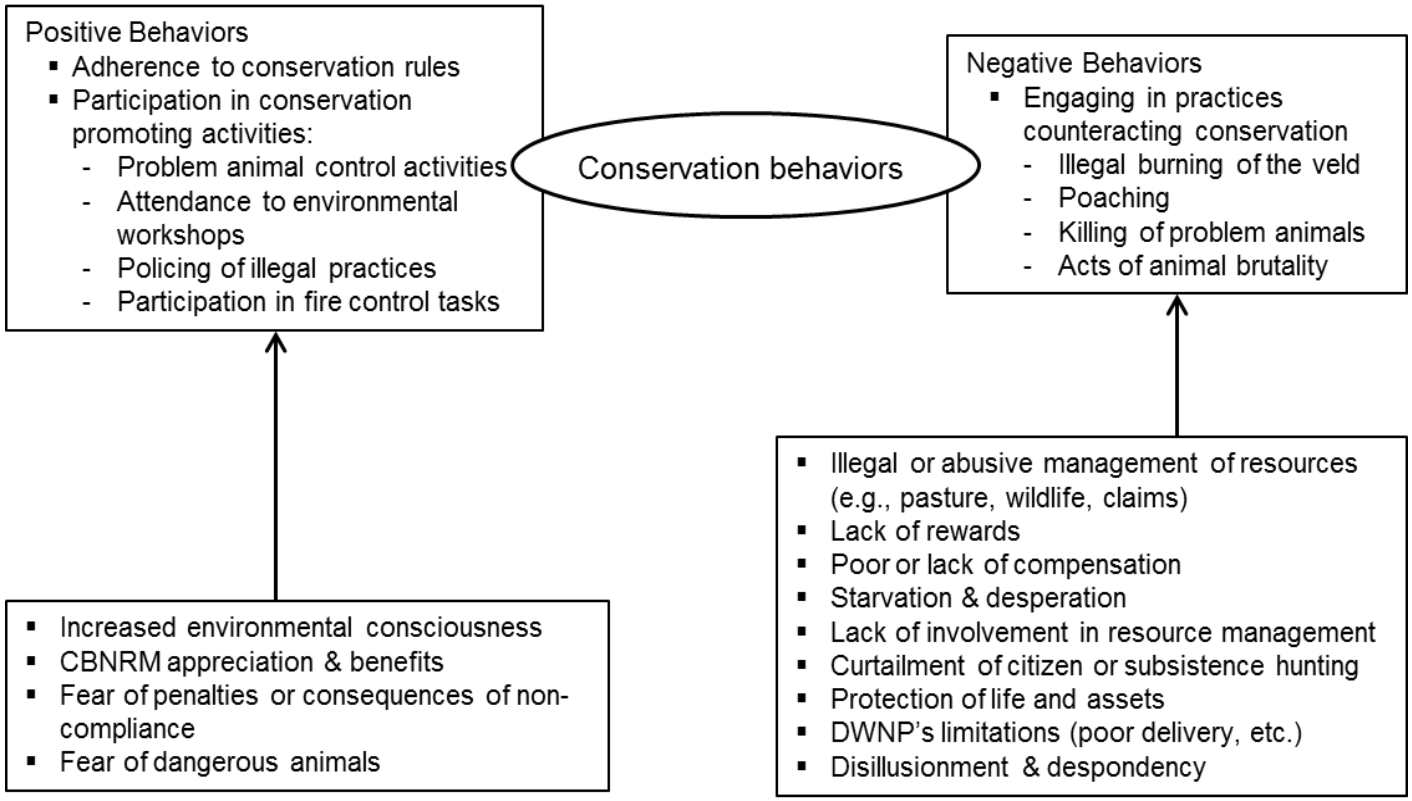

Figure 4-3. A causal network illuminating types and motives of conservation behaviors as viewed by the key informants

CHAPTER 5
DISCUSSION OF THE RESULTS

Introduction

This study used the case of Chobe National Park and its hinterland communities to investigate the extent to which the positive feedbacks and synergies between conservation and development advocated in contemporary scholarship and policy are realized. Specifically, the purpose of the study was to determine whether Chobe National Park has favorable and equitably distributed livelihood effects, and if the livelihood effects in turn lead people to conserve the protected resources. This chapter interprets the findings of the study based on these research objectives. First, the socio-economic setting of the sampled population is explored.

Demographic and Livelihood Background of the Study Population

Although composed of multiple cultural groups, the population of the study area is dominated by people of the Subia ethnicity (50.6%). The majority of the residents have resided in the study settlements for many years, most since birth (42%). Population mobility and relocations within the district are high, with Kasane being the main destination followed by Kachikau. This is explained by Kasane's position as the district headquarters with multiple government, commercial and social services and income generating opportunities, as well as the Botswana's three-tier home system. The system includes a main home in the village, a seasonal one in the farmlands area where the agricultural fields are located, and another ad hoc one at the cattle post where livestock are reared. Kasane is the main home for most people in the district, the center for services and income generation, while the focus for other homesteads is traditional or agricultural activities. There is also a good number (27.6%) of immigrants from outside

Chobe District but within Botswana, and some from abroad. According to DTRP (2000), the higher migration towards Kasane has put pressure on the available land and services in the settlement. This obviously creates competition for livelihood resources and therefore disadvantages those who do not have the means to acquire the resources. People are drawn to the study settlements by mainly economic factors, chiefly employment, which is the main source of household income (68.3%) across the three settlements. Park/tourism related livelihood activities are of less importance than non-park/tourism activities. Government employment dominates, while agriculture tends to assume a back seat. Despite the fact that the study area receives the highest rainfall in Botswana, its agricultural activities have declined over time. The probable explanations for this decline are not only the interference in agriculture by wildlife, but also the lack of investment of tourism returns in agricultural activities. Also, the comparison between the study settlements shows that tourism activities are relatively more important in Kasane. This is expected given that Kachikau and Parakarungu are rural, with more farmland available, while Kasane is more developed and the center of most tourism activities such as hotels, tour services, restaurants and bars (CDDP, 2003; DTRP, 2000).

Favorability of the Livelihood Effects of the Park (LEs)

The overall results show that the study area as a whole experiences an assortment of LEs, made up of both park benefits and park costs. Statistically, the mixed LEs are moderately favorable (mean=2.68) because the marginal park benefits or unfavorable positive effects (means of 1.77 and 2.05) are offset by the few park costs (mean=3.71). Key informants reiterated the statistical results in their comments, noting

the relatively trivial economic benefits of the park for households. However, in these open discussions the key informants emphasized the major impacts of park costs. The likely explanation for the reported low park costs in the questionnaire is that park costs are buffered by the effects of the built environment in Kasane which accounted for two-thirds of the study sample. Also, the residents of Kasane and, to a lesser extent of Kachikau, include a high proportion of migrant workers from outside the district who do not have livelihood assets prone to wildlife damage like fields and livestock within the study area. For the local people, apart from some park/tourism employment, mostly of lower remuneration, and very limited CBNRM related benefits, the positive effects of the park are mainly non-economic or indirect instead of the much needed direct economic benefits. Effectively, the benefits attained by the locals tend to be outweighed by the costs they experience. The non-economic or indirect benefits are manifested by heightened biodiversity conservation and tourism development, exemplified by the increase in high-end tourism facilities and uses (Figures 5-1 and 5-2) which are more apt to provide benefits at the national level and district development.

Overall, Chobe District has witnessed significant growth in tourism activities, which provide different types of formal and informal employment opportunities to locals, such as cooks, cleaners, tour guides, trackers, waiters, drivers, bar attendants, manual laborers, etc., as opposed to more senior or management positions or as owners of tourism facilities (CDDP; 2003; DTRP, 2000). The general lack of tourism and business skills and limited higher education attainment among the local people are factors that contribute to this outcome. CBNRM benefits result because of the long-term existence of community wildlife conservation and uses, including safari hunting, that are allowed in

the controlled hunting areas (CHAs) bordering the park (GOB, 1992; DTRP, 2000). In fact, CECT pioneered the CBNRM practice in Botswana, which would theoretically lead to more empowerment and conservation benefits for the affected communities. However, the direct benefits to households are limited to a few occasional industrial class jobs (trackers, cooks and guides for safari hunters) and sometimes ploughing and milling support and game meat provision (Figure 5-6). This is the case because the revenues generated by the program are, for the most part, used for community development after the retention of a significant portion (65%) by government. Given the high income from safari hunting of P3.5 million annually, a stronger positive impact on household livelihoods could probably be achieved if due attention is paid to distributing the benefits fairly. Conversely, the scenario prevailing in the study area confirms Arntzen's (2003) and Jones' (2002) claims that, while there are substantial revenues accruing to CBNRM trusts, these do not trickle down to the household level and hence have little effect on local livelihoods This problem could be addressed through improved CBNRM policy and governance.

In contrast to the study area, some countries' community conservation programs have succeeded in enabling local people to gain access to significant conservation benefits because they have been accompanied by political will and commitment to the this outcome. For example, the CAMPFIRE program in Zimbabwe is renowned for resulting in increased wildlife and economic benefits for the local residents (Child, 2004). Similarly, community conservation strategies in India have enabled rural residents of Kumaon rights not only to access and use local forests, but also to claim or exercise proprietorship (Agrawal & Ostrom, 2001). Lepp (2004) indicates that locals in

Bigoli in Uganda have been given a habitat (swamp) to control and use for household benefits. Also in Uganda, at Mgahinga National Park, Adams & Infield (1999 & 2003) report the existence of a community outreach program from which local residents derive livelihood benefits and are allowed to extract park resources from a 'multiple use zone' that has been demarcated within the park. As highlighted above, in the study area such consumptive or extractive uses of the park land and resources do not exist, other than the community wildlife quotas, which to a large degree are used for safari hunting as opposed to household consumption.

Previous studies in the study area, including CDDP (2003), DTRP (2000), Jones (2002), KCS (2003), have also observed a high occurrence of park costs, notably wildlife related impacts, movement and resource access restrictions. The mere fact that people live side by side with wildlife, most with very healthy populations, governed by regulations preventing alternative uses creates inevitable, multiple human-wildlife conflicts, eventually resulting in the alleged high costs of the park. The need to allow local people meaningful conservation benefits cannot be overemphasized to compensate for these losses and costs as well as to promote sustainability in general. As some key informants indicated, the high potential for disease transmission from wildlife to livestock compounds the opportunity costs because this often restricts farmers' access to lucrative beef markets. According to the key informant from DWNP, the diseases of concern in the district include foot and mouth disease from buffalo, anthrax from elephants and, to a small extent, rinderpest from wildebeest. Moreover, the wildlife related problems are exacerbated in Chobe because, unlike in other districts, there are no realistic buffer zones between conservation areas and settlements.

The overall results about the nature of the livelihood effects of the park are consistent with several studies carried out in the study area and elsewhere in Botswana, including Arntzen (2003), DTRP (2000), Jones (2002), Mbaiwa (2005) and Moswete et al. (2008). Together with the present study, these studies show that while there is greater success with conservation of biodiversity and development of high-end tourism in Botswana, these benefits are not in balance with socio-economic equity and sustainability. This calls for political will and commitment to reaching the development objectives of conservation policy, and, equally important for the country, to learn from best practices from other places. The CBNRM program constitutes the park's institutional means for enabling the local people to reap conservation and tourism benefits, but, as this study shows, this remains an unrealized goal. As a result, the *disempowerment* ensues because one of the basic pillars of the empowerment process, access to resources, is not practically available to citizens, even when it is a goal in conservation and tourism policy (Kroeker, 1995; Sadan, 2004). One effect is the prevalence of dependency on government "handout" programs, including the casual labor jobs offered by the Ipelegeng program.

Distribution of the Livelihood Effects of the Park

The ANOVA results support the hypothesis that there is significant variation in the nature and distribution of the livelihood effects of the park between the three study settlements. However, the variations are only significant between Kasane and Kachikau on one hand, and Kasane and Parakarungu on the other, but not between Kachikau and Parakarungu. Supporting these results, the in-depth discussions with the key informants revealed that the benefits flow more to Kasane while costs are borne more in

Kachikau and Parakarungu. The discernible differences between Kasane and the other two settlements result because, in addition to being the district service and commercial center, Kasane is located at the gate of the park, well placed as the hub for tourism development and associated benefits. On the other hand, Kachikau and Parakarungu are quite remote and lag behind not only in infrastructural and social amenities but also in tourism facilities, which all negate tourism development and the related benefits. Because of these disparities, as reflected in literature (e.g., DTRP, 2000), tourism development and employment benefits, though significant, are limited to Kasane. On the other hand, the only benefits realized in the other two settlements are CBNRM related, an outcome attributed to the long operation of CECT in the enclave while the CBO in Kasane is still in its formative stage.

There are more costs to Kachikau and Parakarungu because these settlements are located in key wildlife habitats, most important Ngoma and Savuti where there are high populations of major predators. As a result, predation has become the order of the day. As confirmed by the informant from DWNP, this cost is compounded by the wildlife's high preference for crops and livestock because of their relative palatability, a matter beyond the control of locals. Most settlements in the district are also squeezed between the Chobe River, the key wildlife water source, and foraging areas in the park and forest reserves. Thus, as animals go to and from the water point they are bound to conflict with different human land uses. In Kasane, this is buffered by the extensive built environment, including the blockage of access to the river by physical infrastructure, mainly commercial establishments and tourism facilities along the riverfront. According to DTRP (2000), this encroachment by development has raised concerns about the

pressure and effects on the riverfront and biodiversity and the key informants believe this will lead to limitations on land use in the future and potential benefits from the resources. Electric fencing to secure settlements from wildlife interference has been proposed by some informants of this study, but it remains a contentious issue as it will also interfere with wildlife movements. It should be noted that fences in savannah environments, such as veterinary cordon fences in Botswana, have had tremendous adverse effects on wildlife species and are held responsible for the drastic declines some species have suffered (Perkins & Ringrose, 1996). Movement restriction is a huge cost for the enclave communities, among them Kachikau and Parakarungu, because the park separates these settlements from the district service center, Kasane, which they can only access by a road that traverses the park where movement is regulated by well enforced park policy.

Location explains only 4.2% of the variability in the LEs. This is testimony, as observed by the key informants, of the fact that park effects are driven by many other factors. Moreover, as detailed in the next section, physical aspects are not as crucial as others like socio-economic variables and policy.

As highlighted above, conservation benefits accrue at many different scales and to many different groups or strata of society (Emerton, 1999). Concerning the distribution of the LEs in general, the overall results clearly show that important benefits are concentrated in the government and the tourism business community, while ordinary local people benefit much less even though they bear the brunt of park costs. The government accrues conservation revenues through park and permit charges and taxation, in addition to the 65% of the CBNRM returns it retains. The revenues accrued

by the government can be debated as warranted because of the costs it incurs for maintenance and management of the biodiversity and implementation of conservation policy, which is very costly. However, this does not excuse the government from its responsibility of balancing conservation with social development and of giving local communities a realistic means for sharing conservation benefits and having an input in the maintenance of biodiversity. It became apparent that the private entrepreneurs, mostly foreigners or white people, benefit significantly because they dominate ownership of the key tourism facilities and enterprises and therefore the tourism industry. The implication is that much of the conservation revenues are repatriated from the country instead of being injected back in to the study area to develop the district and improve the livelihood conditions of those living with and expected to conserve the resources upon which tourism is based. In the final analysis, besides community development, the direct economic benefits for the local people are meager. One reason, as corroborated by DTRP (2000: 49), is that, 'a greater proportion of financial benefits go to hoteliers, tour operators and the central government in the form of fees, park charges and the like'. Similarly, in the Okavango Delta, Botswana, Mbaiwa (2005) reveals that international tourists, foreign safari companies and investors dominate the tourism industry. It is imperative that conservation benefits reach local households because it is at the household level where conscious decisions about whether to conserve or not are made and implemented. As Emerton (1999) notes, if there are no economic gains for the local communities, then there is insufficient argument and incentive for conservation.

The results of this study confirm observations made by previous studies in Botswana which note the prevalence of spatial and social inequalities in the distribution of conservation benefits and therefore the existence of winners and losers. The winners are the international investors and government and the local communities are the losers (Arntzen, 2003; Arntzen et al., 2003; DTRP, 2000; Jones, 2002; Mbaiwa, 2005; Moswete et al., 2008). Broadly, the results support the contention that African parks are primarily concerned with ecosystem sustainability, enriching governments with park revenues, and contributing to the greater economy, while marginalizing the local people (Adams & Hutton, 2007; Brockington, 2002; Neumann, 1998; Walker, 1994).

The general scenario of the distribution of the LEs suggests that the park (including the CBNRM program) falls far short in contributing to rural livelihood improvement or in enhancing empowered livelihood outcomes or conditions. As argued in the empowerment literature and theories, for example, Conger & Kanungo (1988), Kroeker (1995), Sadan (2004) and Zimmerman (1995), both lack of equity in allocation of conservation benefits and the failure to attain empowered livelihood outcomes are classic conditions of disempowerment. Nonetheless, in spite of the lack of individual or household livelihood empowerment, these results demonstrate that the park does affect community empowerment because the CBNRM program has been able to create community benefits including a hardware shop, grinding mills, tractors, vehicles, a campsite, retail shops, and in the pipeline, a lodge and a filling station. According to Bar-On (2005), in other countries such CBNRM revenues are used mainly for social amenities like schools and clinics. Since the Botswana government provides these services, the communities have the liberty to invest in complementary needs. In addition

to these material benefits, key informants and some scholars (Bar-On, 2005; Child, 2006; Jones, 2002) take note of some less tangible community empowered outcomes, mainly increased social cohesion and some signs of self-reliance and pride. However, even at the community level complete empowerment is still to be realized, especially with regard to allocation of CBNRM revenues.

Factors Underlying the Livelihood Effects of the Park (LEs)

As the literature (Adams & Field, 1999; Arjunan et. al., 2006; Bar-On, 2005; BONIC, 2003; Chandool, 2007; DTRP, 2000; Emerton, 1999; Fullman, 2009; Lepp, 2004) shows, multiple factors create the environmental or socio-economic effects of parks. The results of this study highlight the complex influences driving the nature of the LEs (park benefits and costs) and how they are distributed within the society. Both the quantitative (multiple regression analysis) and qualitative (framework analysis) results agree on this subject and together reveal four categories of influencing factors: 1) physical factors, 2) socio-economic variables and development aspects, 3) park resource access and control policy or institutional structures, and 4) leadership or management performance issues.

Physical Factors

The key physical variables underlying the distribution of park benefits or costs include large wildlife populations, proximity to key wildlife areas, proximity to urban areas, and the enclosure of settlements by conservation areas on one side and the only perennial water source for wildlife on the other side. All of these factors except proximity to urban areas and the tourism attraction of wildlife increase wildlife related costs to the locals more than they increase park benefits. To a large degree, they apply to

Parakarungu and Kachikau and explain why park costs are high in this these settlements. Among other things, it is imperative to station game wardens or have frequent patrol services to help manage the costs. As expressed by Jones (2002), while problem animals may be a curse for local communities in the Chobe Enclave, the abundant wildlife resource accords CECT generous hunting quotas. Ironically, deprivation ensues in this land of plenty because the benefits to the locals are meager.

Socio-Economic Variables and Development Aspects

The results of this study provide evidence pointing to socio-economic variables including level of development or urbanity as one of the key factors underlying the distribution of the net benefits of the park among the different stakeholders and geographic locations. As revealed by the multiple regression results (Table 4-13), of the three predictors hypothesized to influence the LEs, perceived access to park resources had the strongest influence (β =.53). The stronger predictive power of perceived access supports Scoones' (1998) observation that ability to pursue different livelihood strategies is dependent on the possessions a person has. Supporting the role played by one's possessions (actual or perceived), Bebbington (1999: 2022) advances that access is probably the most critical resource of all if people are to build sustainable, poverty-alleviating rural livelihoods. The strong predictive ability of perceived access was also substantiated by the key informants' insights pointing to variables like skills, purchasing power and ability to acquire tourism-viable land as the primary determinants.

In terms of magnitude, measures of central tendency showed that households have some (M=2.51) perceived access. That is, people believe they have some ability to access park resources, related to such factors as knowledge, talents, experience and

financial potential as likely conditions required to enable use of resources like wildlife or qualify people for tourism related jobs. Although still low, Kasane displayed a higher level of perceived access than the other two settlements (Table 4-9). This is expected given its higher level of development and income generating activities, among them tourism enterprises, leading to higher purchasing power, and more skills, leading to more people involved in the tourism industry as both employees and owners of tourism facilities. Corresponding with the finding of some perceived access, the open responses showed that actual access to park resources is minimal or limited to a few, because tourism ventures are far from affordable for ordinary people, coupled with widespread lack of tourism expertise and business acumen. These constraints are exacerbated by Botswana's high license and utility fees and taxes, and by the scarcity of training programs and other support, which were claimed to breed disillusionment and laziness among youth.

The low levels of development or urbanity and lack of tourism facilities in Kachikau and Parakarungu limits tourism employment benefits to Kasane. Notably, the lack of an all-weather road to Parakarungu hinders movement of all sorts during floods for locals and visitors alike and for service delivery. As Adams and Infield (2003) note, together with tourism facilities, infrastructural developments and services like good road networks, transport services including international airports, and a good record on security and law and order are compulsory for a quality holiday experience.

The study area's prevalence of poor resource access and contributing factors is indicated in the existing literature (Bar-on, 2005; Kalahari Conservation Society, 2003). Also, as DTRP hints (2000), it is because of socio-economic restrictions, among other

things, that the tourism industry has failed to stimulate local businesses, although the hotellia has generated jobs for local people especially at lower levels like waiters, cleaners, drivers, etc. The poor development setting, including the various conditions of deprivation as displayed by the local population, reveals a dire need for socio-economic empowerment. It is therefore imperative that the park responds to this call because it has taken up the resources (wildlife, land, the river, etc.) that people would otherwise use for their livelihoods.

Park Resource Access and Control Policy or Institutional Structures

The CBNRM strategy is the only legally constituted means for enabling local communities in Botswana access to conservation benefits and participation in governance or control of the park resources. However, the CBNRM program in the study area is limited in terms of enabling people direct access to park resources or significant livelihood gains because the benefits of the program are skewed toward community development and government.

Like perceived access, both perceived control over park resources (PC) and participation in park governance (PPG) have been shown to be good predictors of LEs, even though they have weak effects (respectively, $\beta = .20$ and $\beta = -.12$). These two predictors refer to control over park resources, the only difference being that one is actual control (PPG) while the other is perceived control (PC). Despite their weak effects, this finding signals the potential influence of resource control in enhancing the attainment of conservation benefits. It is imperative for grassroots people to be involved in park governance. The probable explanation for the weak predictive power is that while having control (perceived or actual) can allow people to influence decisions about

conservation or use of the park estate, it does not automatically equip them with the means to access park resources. For instance, CBNRM Trust members and employees in departments like DWNP may, in one way or the other, be involved in park governance, but may not have the ability to access park resources or venture into tourism enterprises. Though illustrated somewhat differently, Agrawal & Ostrom's (2001) study of parks in Nepal reflects this reasoning in that the locals have little influence on management or conservation outcomes even though they have legal access to some park resources, such as fodder, for some periods of the year. The CAMPFIRE of Zimbabwe is a classic case demonstrating that the devolution of management control and use rights leads to greater livelihood gains. On the same note, Child (2006: 449) remarks, '…the more benefits local people get from a resource, especially individually, and the stronger the rights they have over the resources, the more likely successful resource governance is to emerge'.

Besides having weak influences on LEs, both perceived control over park resources and participation in park governance are negligible in magnitude (respectively, 1.43 and 1.11), indicating very low involvement of people in control or governance of the park. It reflects what Pretty (2002) defines as passive participation or participation by consultation, the extreme lower end of the participation continuum where, for instance, affiliation is taken as participation even when the concerned to do not contribute to decision making. In addition to passive involvement, park governance is also shown to be coupled with a number of unfavorable characteristics including unfair treatment of residents and community representatives' lack of power to influence decisions (Table 4-14 and 4-15). In line with these findings, Bar-On (2006) maintains

that grassroots representation in natural resource governance is very minimal in Botswana because of the dominance of state control and ownership. According to Arntzen et al. (2003), '…real empowerment is yet to be achieved…the transfer of power has by and large been to the boards or governance structures of organizations'. Unlike in the study area, park management control in other places has been effectively decentralized to grassroots people and this has resulted in intense collaboration and trust relations between the locals and park authorities, and wider sharing of conservation benefits (Agrawal & Ostrom's, 2001; Lepp, 2004).

Over and above the predictors postulated to underlie the LEs, the interview results show that conservation policy in general has a strong bearing, positive and negative. It is because of effective enforcement of conservation policy that the study area hosts a thriving wildlife resource base and has indeed led to greater ecosystem sustainability. On the other hand, the extreme restrictions on resource access have been shown to relegate the local people's development needs to the background. An informant noted, '…in spite of the abundant wildlife resource that we are expected to uphold for tourism purposes, our district remains the poorest because all the money goes to Gaborone while back here we are constantly reminded of the penalties that will apply if we do not obey the law; to me, this is prejudice'. As implied in this statement, conservation policy is, in some way, unfair to the locals and breeds inequity in the distribution of park benefits. Relating to resource restrictions, it should also be noted that while some districts enjoy both CBNRM uses and subsistence hunting in CHAs, in Chobe the latter has been curtailed or completely replaced by the former (pers. comm. with a DWNP officer). These findings are also indicative of lack of vision and weak policy on how

tourism can be directed to improve local livelihoods while safeguarding the natural resource base. Even the current district development plan does not reflect any strategic planning of tourism development in the region. Similar to Kgabung's (1999, 2003) observation in the Kgalagadi District, it is because of the failure of conservation policy to meet local people's development aspirations that some of the key informants are advocating for re-introduction of subsistence hunting where benefits go directly to the households. The state of affairs in the study area is consistent with studies arguing that conservation policy and state control in African parks have eroded people's access to their traditional livelihood resources and do little or nothing to allow them to have meaningful share of conservation benefits (Adams & Hutton, 2007; Bar-on, 2005; Brockington, 2002; Magole, 2007; Murphree, 1997).

Altogether, the findings on this subject show that, although the CBNRM strategy is supposed to empower local communities with institutional mechanisms enabling them access to and control over park resources, this goal is yet to be realized on the ground. The results reveal extensive government interference in the allocation of the revenues and operations of the program, poor grassroots involvement in resource governance, and therefore failure to relinquish complete use rights and meaningful management control to the people. For example, although there is community empowerment as manifested by material gains and psychological or intangible benefits in settlements where the CBNRM program functions, the process is not fully realized because the resource use or access rights are partial as indicated in the preceding sections. Also, empowerment (community and household) is negated with regard to participation in park governance because the majority of decisions remain with government (Kroeker,

1995; Perkins & Zimmerman,1995; Sadan, 2004). For example, people including the CBNRM Board members and officials are not involved when setting the community wildlife quota nor are the community level bodies charged with different livelihood mandates (e.g., Village Development Committees and Farmers' Associations) involved in the determination of wildlife damage compensation prices or animal species that attract compensation (see Figure 5-7). Only the CBNRM authority can make decisions on how to use the wildlife quota assigned to the community and the revenues gained from this resource and other operations. According to Perkins & Zimmerman (1995), structural or institutional empowerment is realized when the larger political decision-making system allows some measure of meaningful local control, which, contrariwise, remains largely an illusion in the study area. Some of the observations of this study are consistent with Lepetu's et al. (2008) study on the effectiveness of CBNRM and partnerships in two cases in Botswana. Additionally, the open discussions with the key informants have signaled that phasing out the Village Trust Committees (VTCs) in the study area has compromised the social coherence, commitment, autonomy and little power the original CBNRM program accorded the committees, villages and people serving in the committees. In line with multiple scholars, for example, Larkin et al. (2008), Kroeker (1995), Perkins & Zimmerman (1995), Zimmerman (1995) and Sadan (2004), such a move counteracts different levels of empowerment, including individual, community, organizational (the Trusts) and structural.

Leadership or Management Performance Issues

The unfavorable characteristics of park governance structures, mainly the park governing bodies, are also responsible for the poor attainment of park benefits. The

main characteristics include mismanagement of funds, incompetency, ignorance about park governance structures, indecisiveness, bias in selecting community representatives, lack of power to influence decisions and failure to inform and consult people about park governance processes. Key informants indicated that many of these apply to the CBNRM organization and to some extent DWNP. Few referred to about LACOM (the stakeholder representative committee) at all because it is completely unknown to the people, including community leaders and the various community development committees. Put together, all these characteristics deprive people of many things, including information and opportunities about park benefits. These leadership inefficiencies and limitations create a lack of a clear vision for development of a tourism industry that will involve the locals as key beneficiaries and self-motivated participants in conservation of the protected resources. Most of the limitations, such as incompetency, ignorance about park governance structures, indecisiveness, and lack of power to influence decisions, alleged to reign especially among the CBNRM Trust Board members are, as reflected in the empowerment literature (e.g., Conger & Kanungo, 1988; Kroeker, 1995; Larkin et al., 2008), signs of powerlessness. As these authors contend, organizations like the CBNRM Trust would be empowered if they were characterized by such conditions as mastery and control, access to or mobilization of the essential resources, autonomy and broader participation. Among other things, the management inefficiencies displayed by the park governing bodies warrant investment in leadership skill development and capacity building, particularly for CBNRM Board members and officials. The findings also point to the need for transparency, information

sharing and putting in place strong mechanisms for accountability and checks and balances.

Conservation Behaviors and Comparisons between the Study Settlements

Type and Magnitude of Conservation Behaviors. As revealed by the household survey (Table 4-5) and corroborated by the interview findings, conservation behaviors are generally positive in the study area. There are several explanations to this outcome, including the presence of strict law enforcement such as the anti-poaching campaigns involving the Botswana Defense Force, and the prevalence of environmental education as fostered by different government departments and schools. DWNP facilitates conservation awareness campaigns and actively liaises with other stakeholders through the Division of Community Service and Outreach. Also, as further revealed by the in-depth discussions, people in the study area have a strong tradition of conservation and are very cooperative and normally respond positively to calls from authorities. This culture is age old in Botswana, and it is probably sustained to modern times by a combination of factors, including constant socio-economic support from government in its extensive efforts to decentralize development to rural areas, at least all the basic amenities.

However, between the two dimensions of positive CBs, compliance with conservation rules and performance of practices facilitating conservation, the latter is more voluntary or dependent on self-motivation and is performed much less. This includes behaviors such as participation in wildfire control measures, policing illegal practices, undertaking benign PAC (Problem Animal Control), and participation in environmental awareness building activities. This shows that the promotion of human-

environment positive interactions is more dependent on the enforcement of punitive conservation rules and regulations as opposed to measures that would encourage change of attitudes and mindsets, subsequently promoting more sustainable environmental behavior. The positive behaviors practiced in the study area are consistent with those observed elsewhere, particularly where participation in conservation programs is accompanied by conservation promoting results (Agrawal & Ostrom, 2001; Byaruhanga, 2008; Abbot et al., 2001; Lepp, 2004; Ostrom et al., 1999).

On the other hand, the study results reveal a generally low occurrence of negative behaviors. Unlawful burning of the veld and, to some extent, the undertaking of PAC invasive or harmful activities (mainly responsible killing of problem animals and use of gunshots and guard dogs to scare them away) turn out to be the main negative behaviors that cause concern in the study area. However, according to the informant from DWNP, cross border commercial poaching is always threatening to escalate; hence the deployment of the Botswana Defense Force in the anti-poaching campaigns. In comparison to other parks in Africa, the negative behaviors practiced in the study area are not only many fewer, but also are limited to minimal or acceptable offenses such as responsibly killing problem animals to protect life and assets (Byaruhanga, 2008; Brockington, 2002; Gibson, 1999; Hoare, 2000; Neumann, 1998, Thouless & Sakwa, 1995). Also noteworthy, confrontational behaviors like resistance movements and lawsuits which have been observed, for example, in South Africa, Tanzania, and Central Kgalagadi Game Reserve in Botswana, and in most cases involving indigenous people, are unheard of in the study area (Brockington, 2002; Jones, 2004; Magole, 2007).

Comparisons of Conservation Behaviors between the Study Settlements.

According to the ANOVA results, there is no difference in conservation behaviors between the three study settlements, which suggests that people in the study area practice the same conservation behaviors irrespective of location. However, key informants hinted at some differences between Kasane and the two other settlements (Parakarungu and Kachikau), mainly concerning some of the practices facilitating conservation. For instance, benign or harmless PAC activities and, to some extent, policing of illegal practices, are said to be routinely practiced in the enclave communities, but not in Kasane. This is logical because the other two settlements are in the countryside with more farmland where practices such as fencing fields with tins, plastics and pepper and building heavy duty kraals are warranted to ward off problem animals. On the other hand, policing illegal practices (poaching by residents, safari hunters or visitors, unlawful collection of veld products, illegal burning of the veld, and acts of animal brutality) are concentrated in the enclave communities. Policing is mainly achieved by the use of the community escort guides employed by CECT during safari hunting and by assigning two honorary wildlife wardens (two per settlement) by DWNP. In addition to the foregoing differences, as indicated by the key informants, people in the enclave are more responsive to conservation efforts while Kasane residents seem to be less concerned. Substantiating the ANOVA finding of no difference in CBs, the in-depth discussions signaled that the performance of the rest of the positive conservation behaviors (compliance with conservation rules, participation in wildfire control measures, and involvement in environmental awareness building activities) are the same across the board. The presence of several institutions, committees or clubs which

work together with DWNP to foster conservation education places Kasane ahead on activities related to environmental awareness building.

Regarding the negative behaviors, slight differences were also revealed which show the behaviors to be slightly higher in Parakarungu and Kachikau. As hinted by the household survey open responses and corroborated by Jones (2002), this comes about because wildlife related impacts are high in these settlements and the problem animals are responsibly killed to protect life and assets (Figures 5-6 and 5-7). Broadly, it is deduced that conservation behaviors are more positive in the study area also because of the general passivity or non-action (little undertaking of either practices facilitating or hindering conservation) which, among other things, emanates from the higher level of development and many alternative livelihood activities in Kasane, and the CBNRM related impacts in the enclave communities.

The Impact of the Livelihood Effects of the Park and Other Motives of Conservation Behaviors

The results of a linear regression analysis give evidence showing that LEs impact and correlate positively with CBs, as also substantiated by the key informants narrative insights. The positive correlation indicates that the more beneficial the livelihood effects of the park are, the more positive the conservation behaviors. This suggests that people who benefit from the park tend to conserve and therefore that economic incentives should be a key factor in efforts aimed at promoting biodiversity conservation. The finding verifies the contention of social exchange theory that rewards lead to commitment to perform desired behaviors (Cook, 1987; Ekeh, 1974 Emerson, 1976; Guillet et al., 2002; Zafirovski, 2003). Studies from elsewhere, for example, Lepp

(2004), Kuriyan (2002) and Tchamba (1996) corroborate the significant bearing economic incentives has on fostering positive conservation behaviors. Other studies (Arjunan et al., 2006; Lepp, 2004; Chandool, 2007; Moswete, 2009; Sekhar, 2003) instead reveal positive associations between economic benefits and other forms of positive responses from the affected communities such as attitudes and support for the protected resources.

The qualitative results have further revealed that CBs are a function of many other factors over and above LEs, therefore explaining what accounts for the remaining variance in CBs after the 8.4% that is accounted for by LEs. Thus, together with LEs miscellaneous other motives are at play shaping both the positive and negative conservation behaviors practiced in the study area. Factors shown as key motives for the positive behaviors or non-practice of the negative practices include: 1) the fear of penalties or consequences of lack of compliance, to some extent, 2) impacts of the CBNRM program including heightened environmental awareness and responsiveness, and 3) fear of dangerous animals. The policing of illegal practices as undertaken in the enclave is attributed to heightened environmental consciousness and responsiveness and a sense of resource ownership, conditions that are themselves largely associated with the CBNRM economic benefits and, to some extent, the stake it has in park control. This finding verifies the impact of livelihood benefits (the community wildlife quota and associated developmental outcomes) as revealed by the correlational analysis and shows that intangible or psychological rewards has a bearing too. Also, despite the fact that CECT is minimally involved in park control, the finding signals the positive impact of grassroots involvement in resource management in fostering positive conservation

behaviors. Consistent with this finding, Jones (2002) observes that through the CBNRM program, Chobe Enclave communities residing close to the park participate in some activities like management of problem animals. On the contrary, while people in Kasane are equally environmentally conscious, it became apparent that they do not undertake or are less concerned about such practices as policing illegal practices. The main rationale for this indifference is lack of CBNRM related benefits in Kasane and the availability of diverse livelihood activities. Generally speaking, it can be inferred that the long existence of the CBNRM in the enclave promotes positive conservation behaviors whereas in Kasane where the general passivity or non-action (no or little undertaking of either practices facilitating or hindering conservation) is more prevalent because of higher level of development and many alternative socio-economic activities reduces pressure on the resources.

The results also revealed an interplay of motives in respect to negative behaviors or non-practice of positive behaviors. Lack of rewards in general including inadequate compensation for wildlife damages has been shown to play a major role in motivating negative behaviors or demotivating conservation interest. For example, voluntary participation in wildfire control activities is negligible across the three settlements owing to the fact that employees from different departments are paid claims or salaries while ordinary residents are expected to volunteer their services freely. This behavior persists in spite of the fact that it is legally binding for all citizens to participate in extinguishing wildfires when there is an outbreak and government departments are expected to combine forces to tackle the issue. Wildfires are a big concern in the study area and purported to be human-induced because they are intense and frequent during the dry

season when the occurrence of natural causes like lightening is very unlikely (pers. comm. Forestry Resources). In fact, these fires are attributed to the abusive or criminal objectives of some resource user groups more often than not. Several explanations for unauthorized burning were given. (1) Farmers or harvesters would deliberately burn to kill ticks, deter wildlife, or promote new growth in pasture or thatching grass. (2) Poachers burn to destroy evidence of poaching. (3) Claimants or laborers in fire extinguishing teams burn to get more claims. (4) Campers cause accidental fires through negligence.

The results also provide evidence that the curtailment or replacement of subsistence hunting in all the CHAs in Chobe District through the community quota system motivates negative practices or de-motivates positive behaviors. The implication is that this policy has curtailed hunting benefits for households, therefore compromising the very factor, livelihood reward that motivates positive conservation behaviors. This has been disagreeable to local people elsewhere in the country who often express interest in reverting to subsistence hunting because, unlike the community quota system, it has direct benefits to households or individuals (Kgabung, 1999).

As the findings further show, undertaking invasive or harmful PAC activities, mainly responsible shooting or killing of the problem animals and use of gunshots and guard dogs to deter them, are allowed by law in recognition of the need to protect life and assets, as long as the behaviors are carried out for this purpose in accordance with set procedures and reported to DWNP (see Figures 5-5 and 5-6). Together with this, as stated in WCNP Act of 1992, animals products like elephants tusks remain state property while the community or people affected can keep the carcass (see Figure 5-5).

There is need for caution with these measures as they leave too much room for abuse (killing animals under the pretext of protection of life and assets). Of course there is not much that can be done about proving the authenticity of such deeds, but livelihood resource needs obviously prompts the action. That is, it is time for park managers to depart from management approaches that focus on addressing the consequences and address the root causes of negative behaviors. The strong linkage between poverty and degradation or over-exploitation should not be ignored; hence the need for conservation strategies to genuinely commit to providing the local people sustainable resource use alternatives so that they are not prompted to do otherwise. Also, there is need for strong and lasting mechanisms to help locals ameliorate wildlife related costs. In line with observations made elsewhere (e.g., Brockington & Igoe, 2006; Arjunan et. al., 2006; Tchamba, 1996), the results of this study showed that frustrations and disillusionment associated with a combination of factors, including restrictive conservation policy measures, wildlife damage and lack of adequate compensation or derivation of conservation rewards, may lead to extensive acts of animal brutality. A chairperson of a farmers' association in the study area hinted at the frustrating and desperate circumstances farmers found themselves in because of wildlife related damages and the poor compensation they get, in some cases none at all (for example, when it involves species like hyena which ironically was said to be among the most destructive). Figure 5-7 shows wildlife species that bring compensation and the rationale for their inclusion and exclusion of others like hyena. They are: Buffalo, Cheetah, Crocodile, Elephant, Hippo, Leopard, Lion, Rhino and Wilddog, and are included because:

- Some, like lion and buffalo, are dangerous and a farmer alone cannot control them

- Some are vulnerable and are likely to move into the endangered category if causal factors for decline continue to prevail.
- Some of the animals are threatened with extinction such as Wilddog and Cheetahs.
- Some are fully protected species and therefore cannot be hunted except under exceptional circumstances.

Although some incidents of animal brutality have been cited in the study area, they were noted to be rare occurrences. Studies from other parks, for example, Jackson et al. (2008) and Tchamba (1995), confirm the chronic destructions and deprivations local communities suffer because of the problem animals and the poor compensation they receive.

The findings of this study also indicate that the alleged passive grassroots involvement in park governance and unfair treatment of people by park managers demotivate positive practices or encourage negative ones. This confirms the importance of involving local communities as key custodians of biodiversity which can only be achieved if they contribute to decisions affecting the resources. Several studies resonate with this finding and therefore testify the need for involving the local people in environmental governance. For example, Ostrom et al. (1999) indicate that positive behaviors such as efficient management of common property irrigation systems by farmer groups in Nepal resulted because the collective management processes are based on locally crafted rules and evolved norms. On the same note, Agrawal & Ostrom (2001) reveal that conservation officials appreciate the fact that consumption pressures generated by the poor have the potential to adversely affect the integrity of the resource base. That is, it is important for park managers to understand the root causes of unsustainable practices in order to come up with appropriate remedial measures.

The overall findings about conservation behaviors in the study area provide evidence confirming that the use of economic incentives can foster sustainable resource use. They also validate the positive association between the involvement of the local people in resource governance and environmentally sensitive practices. The findings therefore provide evidence that both of these factors combined can create a strong sense of resource ownership, subsequently instilling realization of the need to conserve resources. They also show that conservation behaviors where the level of economic development and modernization is high can be positive not because the above two factors are necessarily accessible or available, but because there are alternative livelihood activities therefore less interest and pressure on the environmental resources. They show that conservation practices in the study area are positive mainly because there is high adherence to conservation rules not necessarily that there is equally high practice of behaviors facilitating conservation. This is particularly the case where there is high level of urbanity and alternative livelihood activities.

Also, the findings provide evidence supporting some changes or extension of the theory applying in respect of motives for conservation behaviors. That is, although the social exchange theory shows rewards as the only antecedent to commitment to perform a desired behavior (as exemplified by the works of Guillet et al., 2002; Cropanzano & Mitshell, 2005; Zafirovski, 2003), this study reveals more motives (e.g., restrictive policy) over and above park livelihood benefits prompting positive or negative conservation behaviors, hence the need to include the motives as additional antecedents to commitment to perform desired behaviors. This finding is also corroborated by Emerton's (1999) contention that whether or not people conserve

depends not only on economic incentives they derive from wildlife, but also on a host of other things including the costs and benefits of alternative economic activities competing with wildlife, and a range of external factors which limit the extent to which communities are able to appropriate wildlife benefits as real livelihood gains.

Altogether, the general status about the study area's conservation behaviors and protection of the park and wildlife estate shows that even though the park is very limited in achieving the development objectives of conservation policy, it has succeeded tremendously with regard to maintenance of ecosystem sustainability. Also, through environmental education and the CBNRM impacts, people are empowered as manifested by heightened environmental consciousness and the prevalence of positive conservation behaviors, mainly compliance with conservation rules. There is however a need to concentrate on conservation behavior motives that are people-oriented and that can therefore encourage voluntary and self-motivated conservation practice, as well as those that can reduce unresponsiveness and passivity to conservation efforts. Further, there is need for the CBNRM Trust to have a role not only in management of biodiversity, but also in its conservation by investing some of its revenues in this area. To cultivate the foregoing, there is need for Zimmerman's (1995) interactional and behavioral empowering processes, with outcomes entailing active engagement in one's community and taking actions and engaging issues.

The Study's Multi-Perspective Approach

The multi-faceted nature of this study, involving people and the environment, and the relationships between the two and their causes and effects, called for an all-encompassing approach. The relevance of the multi-perspective approach, combining

the theories of empowerment and social exchange as adopted in this study cannot be overemphasized. The approach has shown to be a worthy tool for revealing and understanding in entirety the relationships between conservation and development, processes driving the relationships and the ultimate socio-economic and environmental implications. The empowerment theory has shown how, by enabling people access to and control over park resources, the institutional processes of the park conservation strategy can lead to empowered outcomes in the form of more favorable livelihood effects or park benefits and heightened environmental awareness coupled with environmental friendly practices. The social exchange theory came in to specifically show the relationships between the empowered outcomes (the livelihood and conservation outcomes of the park) and how the relationships come by. The theory has shown that rewards in general including park livelihood benefits prompt environmentally friendly behaviors or refraining from negative practices. Overall, this approach has succeeded in showing that if people are realistically enabled access to and control over park resources, not only will there be improvements in livelihoods but also a sense of resource ownership and motivation to conserve the environment.

Summary

The interpretation of the results involved the integration and evaluation of both the quantitative and qualitative results in order to reveal: 1) the nature and distribution of the livelihood effects of the park, 2) factors underlying the nature and distribution of the livelihood effects of the park, and 3) the impact of the livelihood effects of the park on conservation behaviors and other motivating variables. Throughout, the interpretation reflected on the empowerment needs and implications the park needs to address in its

bid to balance the conservation and development objectives of conservation policy. Also, the relevance of the multi perspective approach adopted for this study was reviewed. Overall, the findings of this study demonstrate that in spite of the Botswana's conservation and tourism policy's emphasis on development and empowerment of local communities, to a large extent, economic efficiency, social equity and political upliftment remain an illusion although greater ecosystem sustainability is attained. To this effect, people's livelihood fate is at the mercy of what government dictates. One likely outcome of this scenario, notably the relegation of the locals to the background in the development process, is the breeding or exacerbation of the dependency syndrome which is already shown to prevail in rural Botswana among people under similar conditions, and signaled in the study area by the reliance on the Ipelegeng manual labor handout program (Arntzen, 2003; Arntzen et al., 2006; Kgabung, 1999 & 2003; Perkins, 1991). Further, this study gives evidence suggesting that the park strategy should adopt the approach of the empowerment and social exchange theories in order to enable individuals and groups to gain power, access to resources and control over their lives (Robbins et al., 1998).

Figure 5-1. Typical hotel and hospitality facilities in Kasane (Source: Author, 2010)

Figure 5-2. Boat cruises, restaurants and beer gardens are the other tourism enterprises common in Kasane but not available in the other two settlements (Source: Author, 2010)

Figure 5-3. Chobe Craft Center in Kachikau: Crafts such as baskets and mats are locally produced from raw materials like reeds (Source: Author, 2010)

Figure 5-4. Open market stalls in Kasane with local products like fish, traditional brooms and curios (Source: Author, 2010)

Figure 5-5. A farmer waiting to surrender elephant tusks to DWNP officials after shooting one of the problem animals (elephants) destroying his crops and other assets (Source: Author, 2010)

Figure 5-6. An elephant shot by farmers in Mabele (the Chobe Enclave) in the bid to protect life and assets, and community members waiting for authorities to seize the tusks before sharing the carcass/meat (Source: Author, 2010)

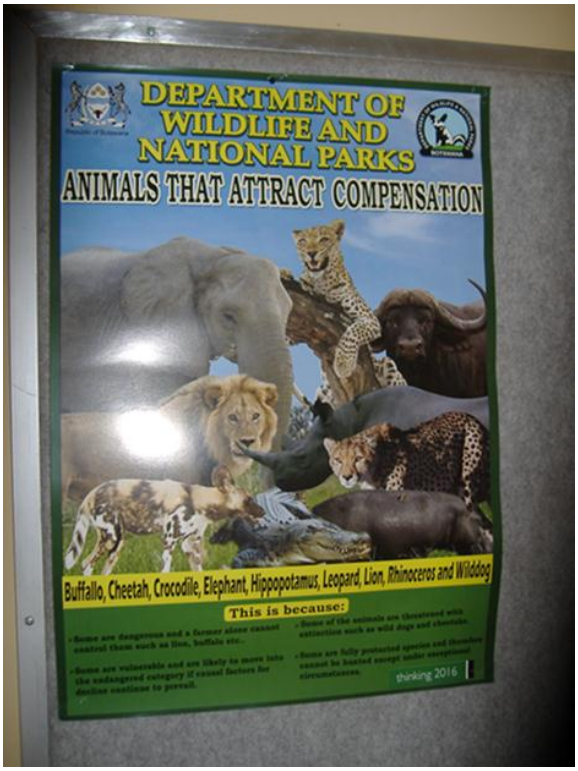

Figure 5-7. Problem animal species that attract compensation (Source: Author, 2010)

CHAPTER 6
CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Conclusions

The cornerstone of this study is the involvement of local communities in environmental governance and derivation of conservation benefits in order to encourage biodiversity conservation while in the process of economic development (WCED, 1987; the Millennium Development Goals). The theories of empowerment and social exchange have been adopted to understand the applicability of these concepts and processes including the implied positive human-environment relationships in Chobe National Park and neighboring communities. Thus, the study was set to determine the extent to which both the conservation and development objectives of park policy are fulfilled as well as to understand the underlying factors and implications. The conclusions drawn from the study are based on these issues and objectives.

Development Objectives: To Determine if the Park has Favorable and Equitably Distributed Livelihood Effects and Underlying Factors

Firstly, it has become clear that Chobe National Park has significant positive livelihood effects, direct and indirect, but the locals do not gain meaningfully in terms of the much needed direct economic benefits. This is so because significant benefits are concentrated to government (in the form of park fees, charges and taxes) and a few who can afford to venture in to tourism entrepreneurship, in most cases foreigners therefore revealing that substatial revenues are repatriated from the country. Additionally, the direct economic benefits that could be derived by the local households through the CBNRM program are restricted to community development after the retention of a large portion (65%) of the program revenues by government. Although deriving some employment benefits, it is mostly of lower scales or industrial class as

opposed holding more senior or management positions. The employment benefit is also contingent on availability of tourism facilities and infrastructural development hence is unavailable in the remoter and less developed settlements. In spite of not obtaining any meaningful park benefits overall, it is at the same time the local people again who experience the huge costs of living side by side with wildlife.

The scenario about the nature and distribution of the livelihood effects of the park in the study area is clear evidence that while conservation has significant returns through tourism, they are, contrary to development goals as stipulated in various conservation and tourism policies, not equitably shared and therefore leading to lack of attainment of broader societal welfare. That is, although the park has led to greater tourism development in Chobe District, it is however very limited as a development intervention in addressing problems of rural poverty, inequalities and marginalization of the locals.

Using the lens of the empowerment theory, this state of affairs, is testimony of the fact that the park institutional structures or processes (e.g., resource access restrictions or the retention of the 65% of the CBNRM safari hunting revenues by the government) are not enabling the local people access to park benefits hence the limited favorable or empowered livelihood outcomes. Particularly, there is no household empowerment with regard to both access to and control over park resources, but some community empowerment through the CBRNM related development projects. This negates the whole concept of socio-economic development and empowerment as manifested by the prevailing signs of deprivation and heavy dependence on government handout programs (notably, casual labor jobs from the Ipelegeng program). The findings also

demonstrate lack of leadership vision to direct tourism development that would involve the locals as key players and beneficiaries, and of equal importance, that promotes conservation. This calls not only for appropriate strategies to reduce the spatial and social inequalities and to create attitudes that are apt to promote biodiversity conservation, but also political will.

Secondly, the study has demonstrated that the attainment of park benefits or favorable LEs is more a function of socio-economic variables (purchasing power, tourism knowledge, business skills, etc.) and park policy or institutional structures than of location. Besides the local people being generally deprived in terms of the socio-economic factors facilitating access to park resources or benefits, the park institution tends not to be committed to creating a practically enabling institutional environment in this regard. For instance, while the CBNRM approach is a good move towards enabling people access to park resources or benefits, the whole purpose is defeated because much of the fiscal returns from the program are retained by government with the remaining mostly used for community development and not trickling down to households.

Similarly, there is no meaningful grassroots involvement in the decision making processes of the park other than consultations to dissemination information or attain opinions. Besides having some incompetencies and biasness, the three park governing bodies (DWNP, CBNRM Trusts and LACOM) have also been shown to be passive players in the governance of the park, mainly serving to carry out orders from the top powers. The objectives of the CBNRM program and LACOM, in particular, the involvement of people in park governance, remain much of theory than practice. In

short, like is the case with enabling people access to park resources, locals including ordinary people, community leaders and even local authorities with conservation and development mandates other than DWNP do not have control over park resources. Thus, empowerment, in terms of giving people park management control rights, is lacking not only at the household level but also at the organizational or local authority level. As the empowerment theory shows, this has a negative bearing on creating conditions of self-reliance, competenciesand greater consciousness about ones environment and eventaully being unable to take charge of processes that affect your life. It is imperative that these issues are used as as departure points for strategies aiming at promoting broader societal welfare, holistic development and greater public participation in decision making processes.

Conservation Objectives: To Examine the Extent to which People Participate in Conservation of the Protected Resources and the Influence of LEs and Other Driving Factors

Conservation behaviors are generally positive in the study area, owing mainly to fear of punitive measures and consequences of lack of compliance and, to a lessor extent, to heightened environmental awareness, a culture of cooperating with authorities and fear of dangerous animals. Notably, there is high compliance with conservation rules but little performance of voluntary practices promoting conservation and indifference or unresponsiveness to conservation efforts. This is indicative of more reliance on punitive measures to motivate conservation as opposed to people oriented ways or self-motivating factors, which are therefore more sustainable. However, the park authority undertakes environmental education campaigns earmarked at promoting positive conservation attitudes and behaviors therefore, to some extent, empowering as

manifested by heightened environmental consciousness amongst the people. By comparison, the negative conservation behaviors are generally low in magnitude and mostly involve minor or acceptable offenses such as shooting problem animals to protect life and assets, and are themselves motivated by multiple factors from lack of rewards including inadequate compensation through lack of involvement in resource governance to frustrations associated with wildlife damages.

Additionally, the general results on factors driving CBs validate the significant role played by tangible rewards. Typically, there is some participation in policing of illegal behaviors as an outcome of appreciation for CBNRM and related benefits, negligible voluntary participation in wildfire control measures because of lack of payment, and indifference to conservation efforts because of poor compensation for wildlife damages. The importance of filtering the direct economic benefits through to households cannot be overemphasized because it at the household level where decisions about use or conservation of the environment are practical and implementable. These insights also verify the applicability of social exchange theory, particularly the notion that rewards, tangible or intangible, influence the desired behaviors.

Overall, and unlike the unattractive status quo relating to social development, as manifested by poor access to tourism benefits and very low involvement in park governance, conservation objectives have been realized and people have been empowered to some degree in terms of increased environmental sensetiveness. There is however need to to focus attention on motives that can increase people's involvement in voluntary practices promoting conservation and to reduce unresponsiveness to conservation efforts.

Overall Objectives and the Multi Perspective Approach of the Study

The general aim of this study was to determine if there are positive relationships and synergies between conservation and development in the study area and only a multi-perspective approach combining the theories of empowerment and social exchange to assess and explain these phenomena and interactions in their entirety became relevant for this undertaking. This approach has enabled the study to carry out an all-encompassing assessment, all at once, of the multi-faceted (development and environment) phenomena and issues involved, and therefore has revealed holistic insights which can help to address the environment-human interaction in its totality. As outlined above through the empowerment theory the study has been able to determine whether or not the park results in empowered outcomes in the form of favorable livelihoods and positives conservation behaviors. Still based on this theoretical approach, it has also been possible to identify and understand factors underlying the distribution of tourism revenues, most importantly, the contribution of conservation policy. Effectively, the study has successfully shown the limitations or strengths of park policy in operationalizing the objectives of promoting development that is ecologically sensitive, economically efficient and socially equitable. On the other hand, the social exchange theory (SET) has enabled the study assess how livelihood effects of the park affect conservation behaviors. That is, the effect of social development on the environment. SET has shown that favorable LEs, that is, park related benefits or rewards, prompt environmentally friendly practices. This analysis has revealed specific issues the park should address in order to promote ecologically sensitive practices and at the end of the day sustain the use and benefits of the resource base. Overall, on the basis of the multi perspective approach, this study has been able to demonstrate that in

spite of the Botswana's conservation and tourism policy's emphasis on development and empowerment of local communities, to a large extent, economic efficiency, social equity and political upliftment remain an illusion although greater ecosystem sustainability is attained.

Study Impact

The study provides far reaching practical and theoretical implications. While previous research has been more sectoral this study was multifaceted and holistic and as a result contributes in entirety and all at once empirical data on the nature of the relationships between conservation and development and their causes and effects. Importantly, it has revealed the contribution of conservation policy or institutional arrangements to these processes, notably, to the resultant socio-economic and environmental conditions, positive or negative. It also became clear that policy does not necessarily translate in to reality hence the need to effectively draw the attention of the decision makers or political will. This study also adds to the body of literature relating to people's responses to conservation policy because previous studies have focused on conservation attitudes and seldom on conservation behaviors, none whatsover in Botswana. Altogether, the study gives all-inclusive insights as to how both the positive and negative impacts of the park institution on local livelihoods and eventually on biodiversity conservation can be enhanced, mitigated or prevented. Thus, how the desired positive relationships and synergies between conservation and social development can be realized. In particular, how resource management policy can be directed to facilitate strategies that safeguard the environment in its totality, nature and people together. The study has also shown the usefulness and relevance of a multi-

perspective approach to the understanding of the immediate and ripple effects of parks or conservation strategies in general.

Conducting the study from the perspective of the empowerment and social exchange theories has not only verified the validity of these theories in explaining the relationships between conservation and development and their causes and implications, but has also shown how the theories can form the basis for holistic and sustainable policy interventions. This is realized because the multi-perspective approach adopted in the study has been able to reveal in entirety the processes through which local people empowerment (social development and participation in biodiversity conservation) can be achieved, and factors that can enhance or impede this. Thus, the study shows how sustainability can be promoted by first dealing with processes that enable or disable people to take charge of their lives and effectively that empower them to have meaningful and sustained livelihoods and positive input in conservation of biodiversity. Most of the analyses of rural livelihoods and their driving factors have been tackled from the sustainable livelihood framework (e.g., Harter, 2008; Mbaiwa, 2008; Parker, 2009), an approach that requires long-term assessments and is too broad, hence it omits details.

Over and above rewards, the study has revealed several other motives of conservation behaviors which therefore qualify as additional predecessors (predecessor constructs) of desired behaviors to expand or modify the social exchange theory. The motives of CBs including LEs as revealed in this study provide relevant insights that should be heeded in the bid to promote sustainable use and an environmentally sensitive human impact on the environment. For example, if significant conservation

benefits are realized by the locals, a virtuous cycle can be promoted because, in terms of the empowerment theory, this translates in to favorable or improved livelihoods (empowered outcomes) which will lead to positive conservation behaviors (also empowered outcomes), therefore heightened biodiversity conservation in turn resulting in sustainable use of the resources and rural development. On the other hand, lack of benefits can be a stimulus for a vicious cycle prompting negative behaviors and in the long run adversely affecting the natural resource base and social development.

Recommendations

Future Research

- This study questions the relevance, efficiency and quality of participation processes in LACOM especially after observing that it is unknown to the people including those serving in various community level bodies with development mandates such as the tribal authority and village development committees. This leaves a lot to be desired about LACOM. It is therefore recommended that its relevance, efficiency and participation processes be investigated.

- Investigation of observed conservation behaviors will address the limitation of measuring self-reported behaviors and therefore add to the insights this study provides

Practitioners

- Locals to be educated about park governing processes, authorities and mandates. This should be spearheaded by DWNP but with the aim of partnering with the CBNRM Trusts. It is important that they know who their representatives are in particularly LACOM so that they know who to take their concerns and questions to in order to ensure their interests are represented. The representatives themselves should update and give their constituents feedback on park governance issues and how their interests are affected or fairing.

- CBNRM technical staff and Board members should have constant meetings with the people to brainstorm and share ideas about the direction of the Trusts, projects undertaken, planned, expenditures and so on. It is important to know what people’s aspirations are about their Trusts even if they do not materialize and to have cordial and healthy relations

- People should be involved in compensation decision making, their queries and concerns respected or addressed fairly, and reasonably compensated. It is

important to address this in order to encourage people's goodwill towards biodiversity conservation and tourism development.

- There is need for development of community tourism vision and strategy crafted to suit the local conditions of the district and to direct how the local people can be involved as key players and beneficiaries. This will need concerted effort from not only the park governors, the communities and the normal district planning structures but also organizations like CEDA and LEA which were set up mainly for development and entrepreneurship empowerment of citizens and diversification of the economy from diamonds in to sectors such as tourism and agriculture. Consultancies can be commissioned to determine the viability of the strategy.

- The need and value for diversification into cultural tourism cannot be over emphasized. Chobe District has diverse and/or unique cultures, histories and architecture which are themselves resources that can be sold to visitors of the park. This should be promoted in the remoter settlements where cultures are still pristine and in order to attract tourists to the settlements. A small eco-cultural village can be developed with accommodation facilities, serving traditional food, using traditional tools, etc.

- Certain tourism enterprises like crafts and curios should be reserved for ordinary people or the big operators should be encouraged to serve as markets for the local suppliers

Policy

- Need for revision of the CBNRM policy, especially the retention of 65% of the program revenues by government. Some of the returns should be invested in community ecotourism development and other initiatives that can facilitate people's access and control over park resources.

- To improve resource access to people and some consumptive uses citizen hunting should be reintroduced in one of the controlled hunting areas and the concept of demarcating community multiple use zone in the park should be considered.

APPENDIX A
HOUSEHOLD SURVEY INSTRUMENT

HOUSEHOLD QUESTIONNAIRE SURVEY

The Influence of Chobe National Park on People's Livelihoods and Participation in Conservation of the Protected Resources

(Bothepha B. T. Mosetlhi)

Village: _____ Household Code: _____ Interview #: _____

Date: _____ Interviewer: _____

*NB: Interviewer, refer to the attached **Study Introduction & Consent Form** and introduce the survey and obtain verbal and written consent from the respondent prior to administering the questionnaire.*

Section 1: Household [HH] Livelihood Background

1. I am going to read a list of socio-economic activities to you. Please tell me how important each activity is as a means by which your HH earns a living. We will start with tourism related livelihood activities.

How important is _____ to your HH's livelihood? **To answer, choose from: *-2)*** *Not At All Important,* ***-1)*** *Not Important,* ***0)*** *Varies/Neutral (Mixed),* ***1)*** *Important, or* ***2)*** *Very Important*	***Not At All Important***	***Not Important***	***Varies (Neutral)***	***Important***	***Very Important***
Park/Tourism-Related Livelihood Activities:					
a) Tour Operating Services (Inc. Photographic Enterprises)	**1**	**2**	**3**	**4**	**5**
b) Hotel & Hospitality Enterprises	**1**	**2**	**3**	**4**	**5**
c) Craft & Curio Enterprises	**1**	**2**	**3**	**4**	**5**
d) Tourist Entertainment Activities *(dance, music, poetry, history/story telling)*	**1**	**2**	**3**	**4**	**5**
e) Park Related Employment (e.g. DWNP / Forestry Dept. – formal or casual jobs)	**1**	**2**	**3**	**4**	**5**
f) Other – ***e.g. safari operations, tourist eating enterprises*** *(restaurant / coffee shop),* ***game meat provisions, internet services)***	**1**	**2**	**3**	**4**	**5**
Non-Park/Tourism-Related Livelihood Activities:					
g) Livestock Rearing	**1**	**2**	**3**	**4**	**5**
h) Arable Farming	**1**	**2**	**3**	**4**	**5**
i) Gathering/Use/Sale of Veld Products (***e.g. thatching grass, reeds, wild foods***)	**1**	**2**	**3**	**4**	**5**
j) Collection/Use/Sale of Fuelwood	**1**	**2**	**3**	**4**	**5**
k) Fishing (or Use/Sale of Fish)	**1**	**2**	**3**	**4**	**5**
l) Subsistence Hunting	**1**	**2**	**3**	**4**	**5**
m) Formal Employment (Non- Park/Tourism-Related)	**1**	**2**	**3**	**4**	**5**
n) Casual Wage Employment (Non- Park/Tourism-Related)	**1**	**2**	**3**	**4**	**5**
o) Destitute Support Program	**1**	**2**	**3**	**4**	**5**
p) HIV/AIDS Support Program	**1**	**2**	**3**	**4**	**5**
q) Old Age Pension Scheme	**1**	**2**	**3**	**4**	**5**
r) Beer Brewing / Selling (Shebeen)	**1**	**2**	**3**	**4**	**5**
s) Kiosk / Tuck-Shop	**1**	**2**	**3**	**4**	**5**
t) Other – ***e.g. small business, rent, retirement pension, church, hawking / street vending*** – Specify: ……..	**1**	**2**	**3**	**4**	**5**

Section 2: HH Involvement in Tourism Related Livelihood Activities *(PARK LIVELIHOOD EFFECTS)*

2. The question that follows only addresses tourism/park related livelihood activities, the aim being to determine if any member of your HH has, in one way or the other, been ***directly involved*** in undertaking these activities. ***(NB: One can be involved as: an employee, sole owner, shareholder, or member)***

Would you describe your HH's (i.e. any member of your HH) involvement in _____ as: *-2)* *Not At All Involved,* ***-1)*** *Not Involved,* ***0)*** *Varies/Neutral (Mixed),* ***1)*** *Involved, or****2)*** *Very Involved?*	***Not At All*** *Involved*	***Not*** *Involved*	***Varies (Neutral)***	*Involved*	***Very*** *Involved*
a) Tour Operating Services (Inc. Photographic Enterprises)	**1**	**2**	**3**	**4**	**5**
b) Hotel & Hospitality Enterprises	**1**	**2**	**3**	**4**	**5**
c) Craft & Curio Enterprises	**1**	**2**	**3**	**4**	**5**
d) Tourist Entertainment Activities *(dance, music, poetry, history/story telling)*	**1**	**2**	**3**	**4**	**5**
e) Other *(safari operations, restaurants, game meat provisions, internet services)*	**1**	**2**	**3**	**4**	**5**

3. If any member of your HH has been ***directly involved*** in any of the tourism/park related livelihood activities, please explain their involvement / role. ***(Interviewer, refer only to activities where the answer to Q2 is 3, 4, or 5)***.

Tourism/Park Related Activities	***Employee***			***Part Provider / Owner of Service (4)***	***Sole Provider / Owner of Service (5)***	***N/A***
	Laborer / Member / User (1)	***Clerical (2)***	***Managerial (3)***			
a) Tour & Photographic	**1**	**2**	**3**	**4**	**5**	**6**

	Enterprises						
b)	Hotel & Hospitality Services	**1**	**2**	**3**	**4**	**5**	**6**
c)	Craft & Curio Enterprises	**1**	**2**	**3**	**4**	**5**	**6**
d)	Tourist Entertainment Activities	**1**	**2**	**3**	**4**	**5**	**6**
e)	Other Tourism Related Activities	**1**	**2**	**3**	**4**	**5**	**6**

Section 3: Benefits of the Park to HH Livelihood *(…LIVELIHOOD EFFECTS)*

4. I would like to know if your HH (i.e. any member of your HH) has been attaining any of the following park/tourism related benefits.

Would you say your HH (i.e. any member of your HH) has been attaining or attains _____? **To answer, select from:** *Not At All So, Not So, Varies (Neutral), So, or Perfectly So*	***Not At All So***	***Not So***	***Varies (Neutral)***	***So***	***Perfectly So***
a) Employment from the Park (e.g. DWNP – formal or casual jobs)	**1**	**2**	**3**	**4**	**5**
b) Employment **OR** Income from Tourism Related Activities ***(such as tour enterprises, hotel industry, curio enterprises, tourist entertainment enterprises, etc.)***	**1**	**2**	**3**	**4**	**5**
c) Ownership of Tourism Related Enterprises / Facilities ***(e.g. tour services, hotel services, dance/music clubs, tourist eating places, curio enterprises, etc.)***	**1**	**2**	**3**	**4**	**5**
~~d) Recreational Benefits (due to availability of leisure opportunities & facilities, etc.)~~	~~**1**~~	~~**2**~~	~~**3**~~	~~**4**~~	~~**5**~~
e) Improved Environmental Awareness & Knowledge	**1**	**2**	**3**	**4**	**5**
f) Improved Socio-Economic Status	**1**	**2**	**3**	**4**	**5**
~~g) Increased Involvement in Management of the Park / Protected Resources~~	~~**1**~~	~~**2**~~	~~**3**~~	~~**4**~~	~~**5**~~
h) Game Meat Provisions	**1**	**2**	**3**	**4**	**5**

5. Now I want to know how you would describe the overall POSITIVE impacts from the following park related resources on your HH's livelihood.

Would you describe the positive impacts from _____ on your HH's livelihood as: *None At All, None, Varies (Neutral), Small, or Huge*?	***None At All (1)***	***None (2)***	***Varies (Neutral) (3)***	***Small (4)***	***Huge (5)***
a) Wildlife	**1**	**2**	**3**	**4**	**5**
b) Park secondary activities (*e.g. tour services, sale of crafts, accommodation services*)	**1**	**2**	**3**	**4**	**5**
c) Park management organizations (*LACOM, DWNP, Trusts*)	**1**	**2**	**3**	**4**	**5**

6. Overall, would you say the park is of benefit to your HH's livelihood? Explain your answer please

_____

_____

Section 4: Costs of the Park to HH Livelihood *(…LIVELIHOOD EFFECTS)*

7. I would like to know if the following livelihood resources/activities of your HH are or have been negatively affected by the park ***(i.e. park related resources: a) wildlife, b) tourism activities & c) authorities)***.

Would you say your HH's _____ are/is/have been negatively affected by the park *(i.e. wildlife, tourism activities & authorities)*? **To answer, select from:** *Perfectly So, So, Varies (Neutral), Not So,* **or** *Not At All So*	***Not At All So***	***Not So***	***Varies / Neutral***	***So***	***Perfectly So***
a) Fields / Arable Farming	**5**	**4**	**3**	**2**	**1**
b) Livestock / Livestock Rearing	**5**	**4**	**3**	**2**	**1**
c) Farm Assets (fences, boreholes, kraals)	**5**	**4**	**3**	**2**	**1**
d) Gathering (of Veld Products)	**5**	**4**	**3**	**2**	**1**
e) Fuelwood Collection	**5**	**4**	**3**	**2**	**1**
f) Subsistence Hunting	**5**	**4**	**3**	**2**	**1**
g) Fishing	**5**	**4**	**3**	**2**	**1**
h) Residences/Buildings, Domestic Goods or Food	**5**	**4**	**3**	**2**	**1**
i) Human Life (Lost or Endangered)	**5**	**4**	**3**	**2**	**1**

8. Now I want to know if your HH (i.e. any member of your HH) has been experiencing any of the following park/tourism related negative impacts.

Would you say your HH's (or any member of your HH's) has been experiencing _____? **To answer, select from:** *Perfectly So, So, Varies (Neutral), Not So,* **or** *Not At All So*	***Not At All So***	***Not So***	***Varies / Neutral***	***So***	***Perfectly So***
a) Livestock Predation	**5**	**4**	**3**	**2**	**1**
b) Property Damages by Wildlife (e.g. damage to farm assets, crops, residences, domestic goods)	**5**	**4**	**3**	**2**	**1**
c) Competition for Grazing Resources with Wildlife	**5**	**4**	**3**	**2**	**1**
d) Disease Transmissions from Wildlife to Livestock	**5**	**4**	**3**	**2**	**1**
e) Loss of Traditional Access/Use of Natural Resources (wildlife, veld products, etc.)	**5**	**4**	**3**	**2**	**1**
f) Loss of Control Over or Management Rights Over Protected Resources	**5**	**4**	**3**	**2**	**1**
g) Loss / Endangerment of Human Life	**5**	**4**	**3**	**2**	**1**

9. I would like to know how you would describe the overall NEGATIVE impacts from the following park related resources on your HH's livelihood

Would you describe the negative impacts from _____ on your HH's livelihood as: *Huge, Small, Varies (Neutral), None,* **or** *None At All?*	***None At All***	***None***	***Varies (Neutral)***	***Small***	***Huge***
a) Wildlife *(such as predation, crop damages, scavenging)*	**5**	**4**	**3**	**2**	**1**
b) Park secondary activities (*e.g. tour services, sale of crafts, accommodation services*)	**5**	**4**	**3**	**2**	**1**
c) Park management organizations (*LACOM, DWNP, VTC*)	**5**	**4**	**3**	**2**	**1**

10. Overall, would you say the park hinders or is detrimental to your HH's livelihood? Explain your answer please

_____
_____
_____

Section 5: HH Participation in Park Governance

11. I am going to read to you a list of park management/governance bodies and activities. Please tell me those that your HH (i.e. any member of your HH) has been participating in (in the recent past years or presently). ***Interviewer, please explain park governance / management related authorities/bodies. They include: LACOM = Local Advisory Committee; DWNP= Dept of Wildlife & National Parks; CBNRM Trust Organization (e.g. CECT KALEPA, or SEBOBA)***

Has your HH ever _____ in the recent past years or at present?	***Never***	***Rarely***	***Sometimes***	***Often***	***Always***
a) Served in Local Advisory Committee (LACOM)	**1**	**2**	**3**	**4**	**5**
b) Served in CBNRM Trust Body (***Specify: CECT, KALEPA or SEBOBA……..***)	**1**	**2**	**3**	**4**	**5**
c) Served in Department of Wildlife & National Parks (DWNP)	**1**	**2**	**3**	**4**	**5**
d) Participated in Community Wildlife Quota Management Decisions	**1**	**2**	**3**	**4**	**5**
e) Participated in Problem Animal (e.g. Elephants, Predators, Scavengers) Management Decision Making	**1**	**2**	**3**	**4**	**5**
f) Participated in Compensation Decision Making	**1**	**2**	**3**	**4**	**5**
g) Participated in Anti-Poaching Decision Making	**1**	**2**	**3**	**4**	**5**
h) Participated in Wild Fire Management Decision Making	**1**	**2**	**3**	**4**	**5**
i) Participated in LACOM Planning & Management	**1**	**2**	**3**	**4**	**5**
j) Participated in DWNP Planning & Management	**1**	**2**	**3**	**4**	**5**
k) Participated in CBNRM Trust Body Planning & Management	**1**	**2**	**3**	**4**	**5**

12. How satisfied are you about management/governance of the park, in particular the level of involvement of the local people in park management and decision making processes? Please give reasons for your answer.

_____

Section 6: Perceived HH Control over Park Resources

13. I am going to read to you perception statements about factors facilitating or impeding your HH's control over park resources (including park governing structures)? Please tell me how true or false each statement is. ***Interviewer, please keep on explaining park governance / management related authorities/bodies (see Q12 above).***

How true or false is the statement that _____? Is it: *Very False, False, Neither(Neutral), True, or Very True*	***Very False***	***False***	***Neither***	***True***	***Very True***
a) Representation of people in park governance by LACOM, DWNP & CBNRM Trusts enables your HH control over park related resources	**1**	**2**	**3**	**4**	**5**
b) The way the park governing bodies manage enables your HH control over park related resources	**1**	**2**	**3**	**4**	**5**
c) Your HH is enabled control over park related resources because of the transparency & fairness exercised by the park governing bodies	**1**	**2**	**3**	**4**	**5**
d) Your HH is able to exercise control over park related resources because the park governing bodies make decisions that are consistent with the views of the public (i.e. incorporate people's views in park management decisions)	**1**	**2**	**3**	**4**	**5**
e) Government conservation policy hinders your HH control over park related resources	**5**	**4**	**3**	**2**	**1**
f) Your HH's lack of participation in management of the park hinders it from exercising control over park related resources	**5**	**4**	**3**	**2**	**1**
g) Your HH's lack of affiliation to park governing bodies (LACOM, DWNP & Trusts) hinders it from exercising control over park related resources	**5**	**4**	**3**	**2**	**1**
h) Your HH's control over park related resources is hindered because park governing bodies are not easily accessible	**5**	**4**	**3**	**2**	**1**
i) Your HH's control over park related resources is hindered because park governing bodies do not consult with the locals or give them feedback	**5**	**4**	**3**	**2**	**1**

14. How much control would you say your HH has over the park related resources?

Would you describe your HH's (i.e. any of your HH member's) control over ____ as *Absolutely No Control, No Control, Neither/Neutral, Control, or Complete Control*?	***Absolutely No Control***	***No Control***	***Neither***	***Control***	***Complete Control***
Park Primary & Secondary Resources:					
a) Wildlife	**1**	**2**	**3**	**4**	**5**
b) Tourism Related Economic Activities (or Income)	**1**	**2**	**3**	**4**	**5**
Park Decision Making Processes:					
c) LACOM Planning & Management	**1**	**2**	**3**	**4**	**5**
d) DWNP Planning & Management	**1**	**2**	**3**	**4**	**5**
e) CBNRM Trust Body Planning & Management	**1**	**2**	**3**	**4**	**5**
Park Governors:					
f) LACOM Members	**1**	**2**	**3**	**4**	**5**
g) DWNP Officials (park officials)	**1**	**2**	**3**	**4**	**5**
h) CBNRM Trust Board Members / Officers	**1**	**2**	**3**	**4**	**5**

Section 7: Perceived HH Access to Park Related Resources

15. I'm going to read to you statements reflecting people's beliefs about factors facilitating or impeding their ability to access (make use of) park resources. Please let me know how true or false each belief is

How true or false is the statement that _____? Is it: *Definitely False, False, Neither True Nor False (Neutral), True, or Definitely True*	***Definitely False***	***False***	***Neither (Neutral)***	***True***	***Definitely True***
a) Your HH has the ability/potential needed to make use of park wildlife to earn a living	**1**	**2**	**3**	**4**	**5**
b) Your HH has the ability/potential needed to earn income or make a living from park/tourism related economic activities like tour services, craft enterprises/sales, hotel services	**1**	**2**	**3**	**4**	**5**
c) Your HH has the ability/potential to access and obtain livelihood related social support & ideas from park management bodies	**1**	**2**	**3**	**4**	**5**

d)	Your HH can easily earn income / make a living from park/tourism related livelihood activities like tour services, craft sales, hotel services.	**1**	**2**	**3**	**4**	**5**
e)	Your HH can easily access and obtain livelihood related social support & ideas from park management bodies (LACOM, DWNP, CBNRM Trust Body).	**1**	**2**	**3**	**4**	**5**
f)	Your HH lacks the means (money) needed to access (make use) of park related resources or to undertake park /tourism livelihood activities	**5**	**4**	**3**	**2**	**1**
g)	Your HH lacks the skills & knowledge needed to access (make use) of park related resources or to undertake park /tourism livelihood activities	**5**	**4**	**3**	**2**	**1**
h)	Your HH is not able to make use of park resources or to undertake park /tourism livelihood activities because it is not affiliated to park mgmt bodies (LACOM, DWNP, CBNRM Trust)	**5**	**4**	**3**	**2**	**1**

Section 8: HH Participation in Conservation of the Protected (Park) Resources

16. I want to know your HH's level of compliance with the following rules on conservation of the protected resources.

Would you describe your HH's level of compliance with _____ as: *Absolutely No Compliance, No Compliance, Varies(Neutral),Compliance, or Complete Compliance*	***Absolutely No Compliance***	***No Compliance***	***Varies (Neutral)***	***Compliance***	***Complete Compliance***
a) Rules prohibiting poaching or illegal hunting of wildlife	**1**	**2**	**3**	**4**	**5**
b) Rules prohibiting illegal collection of veld products (e.g. wild foods, thatch, fuelwood)	**1**	**2**	**3**	**4**	**5**
c) Rules prohibiting grazing of livestock in the park	**1**	**2**	**3**	**4**	**5**
d) Park entrance rules	**1**	**2**	**3**	**4**	**5**
e) Rules on control or prevention of wild fires	**1**	**2**	**3**	**4**	**5**

17. Now I would like to know your HH's level of involvement in voluntary actions/practices undertaken towards conservation of the natural (protected) resources.

How would you describe your HH's level of involvement in _____? **Would you say you are:** *Not At All Involved, Not Involved, Varies(Neutral), Involved, or Very Involved*	***Not At All Involved***	***Not Involved***	***Varies (Neutral)***	***Involved***	***Very Involved***
a) Policing or reporting of illegal practices in the community (e.g. grazing in the park, collection of firewood & veld products from the park, poaching) ***- e.g. by being an escort guide, Honorary Wildlife Officer (HWO), or as a volunteer***	**1**	**2**	**3**	**4**	**5**
b) Problem animal control harmless/protective activities – ***e.g. use of chilly pepper, tins, plastics, cloths, etc. to ward off / deter elephants & other problem animals from fields, etc.***	**1**	**2**	**3**	**4**	**5**
c) Environmental education and awareness building activities (e.g. participation in env. lobbying and advocacy activities)	**1**	**2**	**3**	**4**	**5**
d) Wild fire control activities	**1**	**2**	**3**	**4**	**5**

18. I would also like to know if any member of your HH has ever engaged in any of the following practices.

Has any member of your HH, for one reason or another, ever engaged in _____? **Would you say they***: **1)** Engage to a Large Extent, **2)** Engage to Some Extent, **3)** Varies (Mixed/Neutral), **4)** Don't Engage, or **5)** Don't Engage At All***?***	***Engage to a Large Extent***	***Engage to Some Extent***	***Varies (Neutral)***	***Don't Engage***	***Don't Engage At All***
a) Collection of veld products, wood & water resources without permission	**1**	**2**	**3**	**4**	**5**
b) Grazing of livestock in the park without permission	**1**	**2**	**3**	**4**	**5**
c) Entering the park without permission	**1**	**2**	**3**	**4**	**5**
d) Burning of the veld/habitats without permission	**1**	**2**	**3**	**4**	**5**
e) Hunting of wildlife without permission	**1**	**2**	**3**	**4**	**5**
f) Curbing damages caused by problem animals by undertaking harmful activities such as baiting, trapping, poisoning, shooting them with guns or by use of guarding dogs	**1**	**2**	**3**	**4**	**5**

19. If your HH (i.e. any member of your HH) has engaged in any of the activities in Q18 above please explain what has prompted the undertaking of the activities?

_____
_____

Section 9: HH Socio-Economic Characteristics

20. Age of HH head (years): *18-30 ____ 31-50 ____ 51-65 ____ 65+____ Don't Know ___*
21. Sex of HH head: *M _____ F _____*
22. Marital status of HH head: *Single __ Cohabiting __ Married __ Separated __ Divorced __ Widow(er) __*
23. Ethnicity of HH head: *Subia __ Tawana __ Sarwa __ Lozi __ Nyasa __ Other: __*_____
24. How many years have you (your HH) been living in this area / settlement?
    <10 __ 11-20__ 21-30__ 31- 40__ 40+yrs (or since birth) __ DK __
25. From where did you (your HH) come from: _____
    a) *From Other Settlements in Chobe District*
    b) *From Outside Chobe District*
    c) *From Outside Botswana*
    d) *N/A (Have Always Lived Here / Have Not Migrated)*
26. If you were living in a different locality/region why did you choose to come here?
    a) *Employment (Economic Migrant)*
    b) *Family*
    c) *Livelihood Opportunity (Economic Migrant) – Specify ……..*
    d) *Land Related Factor (Economic Migrant) – Specify ……..*
    e) *Push Factor (e.g. war, conflicts)*
    f) *N/A (Have Always Lived Here / Have Not Migrated)*
27. HH size: Adults (18yrs and above) _____ Children (< 18yrs) _____ Total _____
28. Education level of HH:
    a) *No Schooling*
    b) *Non-Formal Education*
    c) *Primary*
    d) *Secondary*
    e) *Vocational/Technical School*
    f) *College/University*
29. Occupation of HH Head: _____
    a) *Professional, Skilled Laborer/Worker (Including Entrepreneurs, Community Leadership Positions, etc.)*
    b) *Unskilled Laborer / Manual Worker*
    c) *Small / Informal Business Owner (e.g. Street Vendor, Kiosk, Chibuku Depot, Car Wash, Craft Sales)*
    d) *Entrepreneur / Formal Business Owner*
    e) *Peasant Farmer (Including Fishermen, Harvesters, etc.)*
    f) *Retiree/Pensioner*
    g) *No Occupation / Other (Including Housewife, Traditional Beer Brewers, Volunteers, etc.)*
30. What is your household's main source of income? _____
    a) *Formal Employment (Fixed Salary)*
    b) *Part Time Employment / Piece Jobs (e.g. Casual Wage)*
    c) *Small Business (e.g. Street Vendor/Hawking, Kiosk, Chibuku Depot, Traditional. Beer Sales, Car Wash, Craft Sales)*
    d) *Farming/Fishing/Harvesting (sale crops, livestock, fish or veld products)*
    e) *Old Age Pension*
    f) *Remittances*
    g) *Other: Specify (e.g. Rent, Retirement Pension, Charity / Welfare Support)…..……..*
31. Approximately how much is your HH's overall monthly income (in Pula).
    < 200__ 201-500__ 501-1000__ 1001-1500__
    1501-2000__ 2001-3000__ >3000__ DK__

THANK YOU FOR YOUR TIME AND PARTICIPATION

APPENDIX B
KEY INFORMANT INTERVIEW GUIDE

INTERVIEW GUIDE FOR KEY INFORMANTS

The Influence of Chobe National Park on People's Livelihoods and Conservation Behaviors

(*BOTHEPHA B. T. MOSETLHI*)

Village: _____ Organization/Committee: _____ Designation: _____

Date: _____ Interviewer: _____

*NB: Interviewer, refer to the attached **Consent Form** and introduce the study and obtain verbal and written consent from the respondent prior to interviewing*. Also, emphasize what '***the park'*** refers to, which is park related resources and uses mainly: ***wildlife, tourism activities & park governing structures***

1. In your view what are the benefits of Chobe National Park to people's livelihoods in this area?
2. What would you say are the negative impacts of the park on people's livelihoods?
3. To what extent are members of this community involved in undertaking the following tourism related economic activities: 1) Tour Services, 2) Hotel and Hospitality, 3) Crafts and Curio, 4) Tourist Entertainment (dance, music, storytelling, etc.), 5) Park/DWNP Employment, 6) Safari Hunting, and 7) Others like Food Services? How significant do you think each of these activities is to people's livelihoods in this community?
4. Overall, what do you think influences (enables or hinders) people's attainment of the benefits of the park or engagement in tourism related livelihood activities? Do you think factors like affiliations to park management bodies (LACOM, DWNP, and CBNRM Trust Bodies), etc. play a role? *Please Explain*
5. What is your opinion about the way the park is managed? How effective and objective would you say the following park governing bodies are: a) DWNP, b) LACOM, and c) CBNRM Trust Body? *Please Explain*
6. What do you know and is your opinion about the level of involvement of the local people (including your committee or organization and other community level bodies in this settlement) in management of the park? Please explain in detail factors that influence the level of grassroots involvement in park governance.
7. How involved are members of your community in initiatives or activities undertaken to conserve protected resources such as wildlife and the park land?

8. How would you describe the involvement of members of this community in the following conservation facilitating activities (Positive Behaviors) and what do you think influence the level of participation?
    a. Policing and reporting of illegal practices in the community (e.g., poaching, grazing in the park, unlawful collection of firewood and veld products)
    b. Participation in problem animal control (PAC) benign or harmless activities (e.g., the use of chilly pepper, tins, plastics, cloths to deter elephants and other problem animals)
    c. Participation in environmental education and awareness building or lobbying efforts
    d. Participation in wildfire control activities
9. How would you describe the involvement of members of this community in the following conservation hindering or counteracting activities (Negative Behaviors) and what do you are the factors influencing the engagement in these activities?
    a. Collection of veld products, firewood and water resources from the park without permission
    b. Grazing of livestock in the park without permission
    c. Entering the park without permission
    d. Burning of natural habitats or pastures without permission
    e. Engaging in problem animal control (PAC) invasive or harmful activities (e.g., shooting, baiting, trapping, poisoning or killing of problem animals)
10. Considering the impact you think the park has on people's livelihoods and rural development in this district, as well as its general role, would you still support its existence or not? *Please explain*

APPENDIX C
FACTOR ANALYSIS RESULTS BY INDIVIDUAL CONSTRUCTS OF THE INSTRUMENT

Table C-1. Pattern Matrix and Commonalities of the Livelihood Effects Items *(8-Factor Default Solution)*

Item	Pattern Coefficient								Commonalities
	1	2	3	4	5	6	7	8	
Tourism Employment / Income	0.913								0.523
Involvement in Hotel Enterprises	0.911								0.774
Total Benefits of Tourism Activities	0.885								0.684
Improved Socio-Economic Status	0.773			0.303					0.519
Involvement in Tour Services/Enterprises	0.542							-0.33	0.793
Disease Transmissions from Wildlife		-0.917							0.703
Grazing Competition with Wildlife		-0.898							0.9
Livestock Predation		-0.841							0.746
Total Costs of Wildlife		-0.692							0.566
Property Damages by Wildlife		-0.538							0.836
Involvement in Craft Enterprises			0.828						0.768
Ownership of Tourism Assets/Enterprises			0.752						0.653
Involvement in Tourist Entertainment Activities			0.595					0.308	0.852
Park Employment				0.834					0.696
Total Benefits of Park Organizations				0.742					0.805
Environmental Knowledge / Awareness				0.71					0.478
Total Costs of Tourism Activities					0.827				0.745
Total Costs of Park Organizations					0.825				0.772
Loss of Resource Access						0.985			0.961
Loss of Resource Management Control						0.984			0.962
Involvement in Other Tourism Activities (Safaries)							0.896		0.68
Game Meat Provosions							0.809		0.673
Life Loss/ Endangerment								-0.804	0.7
Total Benefits of Wildlife				0.392				-0.422	0.724

NB: Involvement in Tourism Activities and Park Benefits items are bolded for easy of reference

Table C-2. Pattern & Structure Matrices and Commonalities of the 11 Participation in Park Governance Items (3-Factor Default Solution)

Item	Pattern Coefficient			Structure Coefficient			Commonalities
	1	2	3	1	2	3	
Participate in Compensation DM	0.925			0.917			0.851
Participate in DWNP Planning/Mgmt	0.914			0.906			0.846
Participate in Anti-Poaching DM	0.865			0.88			0.739
Ever Served in DWNP	0.865			0.875			0.782
Participate in Problem Animal DM	0.858			0.858			0.779
Participate in Fire Control DM	0.639			0.643			0.825
Ever Served in CBO Trust		0.938			0.921		0.776
Participate in CBO Trust Planning/Mgmt		0.917			0.907		0.414
Participate in Comm Wlife Mgmt/DM		0.821		0.367	0.861		0.845
Ever Served in LACOM			0.92			0.922	0.842
Participate in LACOM Planning/Mgmt			0.915			0.918	0.85

NB: DM refers to Decision making

Table C-3. Pattern & Structure Matrices and Commonalities of the Perceived Control over Park Resources Items *(3-Factor Default Solution)*

Item	Pattern Coefficient			Pattern Coefficient			Commonalities
	1	2	3	1	2	3	
Control over DWNP Officials	0.991			0.964			0.518
Control over DWNP Planning & Mgmt	0.979			0.957			0.483
Control over Wildlife	0.578			0.677		0.382	0.874
Control over CBO Trust Board Members		0.986			0.983		0.932
Control over CBO Trust Planning & Mgmt		0.98			0.982		0.964
Control over LACOM Planning & Mgmt			0.91	0.375		0.932	0.883
Control over LACOM Members			0.896	0.335		0.932	0.924
Control over Tourism Activity/Income			0.72			0.686	0.97

Table C-4. Pattern & Structure Matrices and Commonalities of the Perceived Access to Park Resources Items of the *(3-Factor Default Solution)*

Item	Pattern Coffiecient		Structure Coffiecient		Commonalities
	1	2	1	2	
HH can easily engage in tourism activities	0.823		0.804		0.428
HH lacks skill needed to access park resources	0.791		0.77	0.422	0.625
HH lacks money needed to access park resources	0.776		0.769		0.891
HH has ability to engage in tourism activities	0.708		0.742		0.649
Lack of affiliation disables HH access to park resources	0.408		0.476	0.342	0.858
HH has ability to access social support/ideas from PK Orgs		0.961		0.942	0.56
HH can easily access social support/ideas from PK Orgs		0.951		0.923	0.596
HH has ability to make use of Wildlife		0.521	0.432	0.607	0.265

Table C-5. Pattern & Structure Matrices and Commonalities of the Conservation Behaviors Items of the *(3-Factor Default Solution)*

Item	Pattern Coefficient				Structure Coefficient				Commonalities
	1	2	3	4	1	2	3	4	
Illegal Entrance in to the Park	0.94				0.893				0.685
Burning the Veld / Habitats without Permission	0.908				0.872				0.678
Hunting without Permission (Poaching)	0.717				0.803			-0.466	0.628
Grazing in the Park without Permission	0.657			-0.329	0.757			-0.511	0.755
Comply w/ Fire Control Rules		0.883				0.859			0.784
Comply w/ Park Enterance Rules		0.859				0.83			0.757
Comply w/ Rules Prohibiting Poaching		0.808				0.821			0.677
Comply w/ Rules Prohibiting Grazing in the Park		0.762				0.779		-0.305	0.716
Comply w/ Veld Product Collection Rules		0.753				0.778			0.624
Participate in Policing of Illegal Practices (poaching)			0.864				0.869		0.58
Participate in Env Education / Awareness Building			0.85				0.84		0.681
Participate in Fire Control Activities			0.778				0.777		0.806
Undertake PAC Harmful Activities (shooting, baiting)				-0.82				-0.834	0.8
Undertake PAC Harmless/Conservation Activities			0.432	0.708			0.44	0.693	0.72
Collecting Veld Products without Permission				-0.629	0.403			-0.691	0.701

NB: PAC refers to Problem Animal Control

APENDIX D
RESEARCH PROTOCAL APPROVAL

UF Institutional Review Board
UNIVERSITY of FLORIDA

PO Box 112250
Gainesville, FI32611-2250
352-392-0433 (Phone)
352-392-9234 (Fax)
irb2@ufl.edu

DATE: December 7, 2009

TO: Bothepha B. Kgabung
c/o Naomi Moswete
281 Corry Village Apt. 13
Gainesville, FL 32603

FROM: Ira S. Fischler, PhD, Chair
University of Florida
Institutional Review Board 02

SUBJECT: **Approval of Protocol #2009-U-0635**

TITLE: The Impact of Chobe National Park on People's Livelihoods and Conservation Behaviors. Chobe District, Botswana

SPONSOR: University of Botswana; Fulbright; TCD Pre-Dissertation Grant

I am pleased to advise you that the University of Florida Institutional Review Board has recommended approval of this protocol. Based on its review, the UFIRB determined that this research presents no more than minimal risk to participants, and based on 45 CFR 46.117(c), An IRB may waive the requirement for the investigator to obtain a signed consent form for some or all subjects if it finds either: *(1) That the only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality. Each subject will be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern; or (2) That the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context.*

The IRB authorizes you to administer the informed consent process as specified in the protocol. If you wish to make any changes to this protocol, ***including the need to increase the number of participants authorized***, you must disclose your plans before you implement them so that the Board can assess their impact on your protocol. In addition, you must report to the Board any unexpected complications that affect your participants.

This approval is valid through **December 3, 2010**. If you have not completed the study by this date, please telephone our office (392-0433), and we will discuss the renewal process with you. It is important that you keep your Department Chair informed about the status of this research protocol.

ISF:dl

APPENDIX E
RESEARCH PERMIT

TELEPHONE: 3914955
TELEGRAMS: MEWT
TELEX:
TELEFAX: 3914861
REFERENCE: **EWT 8/36/4 XI (21)**

REPUBLIC OF BOTSWANA

MINISTRY OF ENVIRONMENT,
WILDLIFE AND TOURISM
PRIVATE BAG BO 199
GABORONE

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1 March 2010

Ms Bothepha Mosetlhi
P/Bag UB00704
Gaborone

Tel:3908989
Fax:3552908
Email:bothephakyahoo.com/Bothepha@ufl.edu

APPLICATION FOR A RESEARCH PERMIT:
THE INFLUENCE OF CHOBE NATIONAL PARK ON PEOPLE'S LIVEHOODS & PARTICIPATION IN CONSERVATION OF THE PROTECTED RESOURCES

Reference is made to your email application received on 15 February 2010 on the above subject matter.

We are pleased to inform you that you are granted permission to conduct a research entitled **"THE INFLUENCE OF CHOBE NATIONAL PARK ON PEOPLE'S LIVEHOODS & PARTICIPATION IN CONSERVATION OF THE PROTECTED RESOURCES."**

The research will be conducted at **Parakarungu, Kavimba, Kasane, Pandamatenga and Lesoma** from **1 March 2010 to 31 December 2010.**

This permit is granted subject to the following conditions:

1. This permit is granted subject to the following conditions:

2. Signing and submission of an Agreement between Government of Botswana and Independent Researchers (enclosed).

3. Copies of any videos/publications produced as a result of this project are directly deposited with the Office of the President, National Assembly, Ministry of Environment, Wildlife and Tourism, Botswana Tourism Board, Department of Wildlife & National Parks, National Archives, National Library Service, Research and Development Office, and the University of Botswana Library.

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4. This permit does not give authority to enter premises, private establishments or protected areas. Permission for such entry should be negotiated with those concerned.

5. You conduct the study according to particulars furnished in the approved application taking into account the above conditions.

6. The research team comprise of **Bothepha Mosetlhi and Thata Diane as a research assistant.**

7. Failure to comply with any of the above conditions will result in the immediate cancellation of this permit.

8. The applicant should ensure that the Government of Botswana is duly acknowledged for all material originally from Botswana.

You are advised to apply to the Department of Wildlife & National Parks (DWNP) for a Supplementary Permit to enter any of our protected areas and pay appropriate parks fees as determined by the DWNP and also provide the names of Bushmen trackers as soon as they are appointed.

Thank you.

Yours faithfully,

T. Nkwane
FOR/PERMANENT SECRETARY

cc: Department of Environmental Affairs
Department of Forestry and Range Resources
Department of National Museum and Monuments
Department of Wildlife and National Parks.

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BIOGRAPHICAL SKETCH

Bothepha B. T. Mosetlhi was born in1968 in Lobatse, Botswana. She completed her primary schooling in 1981 (Segoditshane Primary School, Gaborone) and obtained her Cambridge Overseas School Certificate in 1986 from Gaborone Secondary School. She then served for one year in the National Service (Tirelo Sechaba) in a tiny rural village of Masokwane in North East District, Botswana. In the National Service she was mostly teaching and providing different types of community service. She received a Bachelor of Arts degree (majoring, environmental science and English) from the University of Botswana in 1992. After graduating from the University of Botswana (UB) in 1992 with a Bachelor of Arts degree (Humanities), she joined Ministry of Works, Transport & Communications (Roads Department) where she served as an Assistant Environmentalist in a major road, Trans-Kgalagadi Road project, traversing the fragile Kgalagadi ecosystem. While with Roads Department Bothepha enrolled for an MSc. program in environmental science with the University of Botswana, the degree which she obtained in 1999.

In 1998, Bothepha left the public service and joined a private environmental consultancy firm, Geoflux. In Geoflux Bothepha was employed as an Environmental consultant. Although based in Gaborone she worked all over Botswana and in other countries in Southern Africa where she was involved in various consultancy projects involving different socio-economic and environmental issues and phenomena. In August 2000, Bothepha joined the Department of Environmental Science, University of Botswana, as a Lecturer. She taught both undergraduate and graduate courses, including Savannah ecology, wildlife conservation and tourism development, sustainable development, environmental issues, environmental impact assessment, and

survey methods. In 2005, Bothepha received a Fulbright scholarship to study towards a PhD degree at the University of Connecticut (UConn), Storrs. Bothepha transferred to University of Florida, Gainesville (School of Natural Resources & Environment) in 2006 because the program at UConn did not meet her academic and professional aspirations. The University of Botswana (also her employer) continued her funding when the Fulbright scholarship expired in 2007. Bothepha completed her PhD program in Interdisciplinary Ecology at the University of Florida in January 2012 while the degree itself was awarded in May of the same year. Upon completion, she returned to her country, Botswana, to resume her duty as a lecturer in the Department of Environmental Science, University of Botswana.